



# SEQUENCE LISTING

<110> ~~FRANCOIS~~, Guy A.  
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<120> LOCI FOR IDIOPATHIC GENERALIZED EPILEPSY, MUTATIONS THEREOF AND METHOD  
USING SAME TO ASSESS, DIAGNOSE, PROGNOSIS OR TREAT EPILEPSY

<130> GOUD:023US

<140> 09/718,355

<141> 2000-11-24

<150> 60/167,623

<151> 1999-11-26

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<170> PatentIn version 3.1

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Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile  
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Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu  
 65 70 75 80

Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys Gly  
 85 90 95

Lys Ala Ile Phe Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr

100

105

110

Pro Phe Asn Pro Leu Arg Lys Ile Ala Ile Lys Ile Leu Val His Ser  
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Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe  
 130 135 140

Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr  
 145 150 155 160

Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Ile Ala Arg  
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Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp  
 180 185 190

Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val Asp  
 195 200 205

Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu  
 210 215 220

Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu  
 225 230 235 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe  
 245 250 255

Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn  
 260 265 270

Leu Arg Asn Lys Cys Ile Gln Trp Pro Pro Thr Asn Ala Ser Leu Glu  
 275 280 285

Glu His Ser Ile Glu Lys Asn Ile Thr Val Asn Tyr Asn Gly Thr Leu  
 290 295 300

Ile Asn Glu Thr Val Phe Glu Phe Asp Trp Lys Ser Tyr Ile Gln Asp  
 305 310 315 320

Ser Arg Tyr His Tyr Phe Leu Glu Gly Phe Leu Asp Ala Leu Leu Cys  
 325 330 335



Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Met Cys Val  
340 345 350

Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr Phe  
355 360 365

Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Phe Trp  
370 375 380

Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met  
385 390 395 400

Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu Ile Asn  
405 410 415

Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn Gln Ala  
420 425 430

Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met Ile  
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Glu Gln Leu Lys Lys Gln Gln Glu Ala Ala Gln Gln Ala Ala Thr Ala  
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Thr Ala Ser Glu His Ser Arg Glu Pro Ser Ala Ala Gly Arg Leu Ser  
465 470 475 480

Asp Ser Ser Ser Glu Ala Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu  
485 490 495

Arg Arg Asn Arg Arg Lys Lys Arg Lys Gln Lys Glu Gln Ser Gly Gly  
500 505 510

Glu Glu Lys Asp Glu Asp Glu Phe Gln Lys Ser Glu Ser Glu Asp Ser  
515 520 525

Ile Arg Arg Lys Gly Phe Arg Phe Ser Ile Glu Gly Asn Arg Leu Thr  
530 535 540

Tyr Glu Lys Arg Tyr Ser Ser Pro His Gln Ser Leu Leu Ser Ile Arg  
545 550 555 560

Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Thr Ser Leu Phe Ser  
565 570 575

Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp Phe Ala Asp  
580 585 590

Asp Glu His Ser Thr Phe Glu Asp Asn Glu Ser Arg Arg Asp Ser Leu  
595 600 605

Phe Val Pro Arg Arg His Gly Glu Arg Arg Asn Ser Asn Leu Ser Gln  
610 615 620

Thr Ser Arg Ser Ser Arg Met Leu Ala Val Phe Pro Ala Asn Gly Lys  
625 630 635 640

Met His Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Val Gly Gly  
645 650 655

Pro Ser Val Pro Thr Ser Pro Val Gly Gln Leu Leu Pro Glu Val Ile  
660 665 670

Ile Asp Lys Pro Ala Thr Asp Asp Asn Gly Thr Thr Thr Glu Thr Glu  
675 680 685

Met Arg Lys Arg Arg Ser Ser Ser Phe His Val Ser Met Asp Phe Leu  
690 695 700

Glu Asp Pro Ser Gln Arg Gln Arg Ala Met Ser Ile Ala Ser Ile Leu  
705 710 715 720

Thr Asn Thr Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro  
725 730 735

Cys Trp Tyr Lys Phe Ser Asn Ile Phe Leu Ile Trp Asp Cys Ser Pro  
740 745 750

Tyr Trp Leu Lys Val Lys His Val Val Asn Leu Val Val Met Asp Pro  
755 760 765

Phe Val Asp Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe  
770 775 780



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Ala Tyr Val Lys Arg Lys Ile Tyr Glu Phe Ile Gln Gln Ser Phe				
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Ile Arg Lys Gln Lys Ile Leu Asp Glu Ile Lys Pro Leu Asp Asp				
1040		1045		1050
Leu Asn Asn Lys Lys Asp Ser Cys Met Ser Asn His Thr Ala Glu				
1055		1060		1065
Ile Gly Lys Asp Leu Asp Tyr Leu Lys Asp Val Asn Gly Thr Thr				
1070		1075		1080
Ser Gly Ile Gly Thr Gly Ser Ser Val Glu Lys Tyr Ile Ile Asp				
1085		1090		1095
Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val				
1100		1105		1110
Thr Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn				
1115		1120		1125
Thr Glu Asp Phe Ser Ser Glu Ser Asp Leu Glu Glu Ser Lys Glu				
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Lys Leu Asn Glu Ser Ser Ser Ser Ser Glu Gly Ser Thr Val Asp				
1145		1150		1155
Ile Gly Ala Pro Val Glu Glu Gln Pro Val Val Glu Pro Glu Glu				
1160		1165		1170
Thr Leu Glu Pro Glu Ala Cys Phe Thr Glu Gly Cys Val Gln Arg				
1175		1180		1185
Phe Lys Cys Cys Gln Ile Asn Val Glu Glu Gly Arg Gly Lys Gln				
1190		1195		1200
Trp Trp Asn Leu Arg Arg Thr Cys Phe Arg Ile Val Glu His Asn				
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Trp Phe Glu Thr Phe Ile Val Phe Met Ile Leu Leu Ser Ser Gly				
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Ala Leu Ala Phe Glu Asp Ile Tyr Ile Asp Gln Arg Lys Thr Ile  
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Lys Thr Met Leu Glu Tyr Ala Asp Lys Val Phe Thr Tyr Ile Phe  
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Ile Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Tyr Gln Thr  
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Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val Asp  
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Val Ser Leu Val Ser Leu Thr Ala Asn Ala Leu Gly Tyr Ser Glu  
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Leu Gly Ala Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg Pro  
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Leu Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val Asn  
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Ala Leu Leu Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu Val  
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Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu  
1355 1360 1365

Phe Ala Gly Lys Phe Tyr His Cys Ile Asn Thr Thr Thr Gly Asp  
1370 1375 1380

Arg Phe Asp Ile Glu Asp Val Asn Asn His Thr Asp Cys Leu Lys  
1385 1390 1395

Leu Ile Glu Arg Asn Glu Thr Ala Arg Trp Lys Asn Val Lys Val  
1400 1405 1410

Asn Phe Asp Asn Val Gly Phe Gly Tyr Leu Ser Leu Leu Gln Val  
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Ala Thr Phe Lys Gly Trp Met Asp Ile Met Tyr Ala Ala Val Asp  
1430 1435 1440

Ser Arg Asn Val Glu Leu Gln Pro Lys Tyr Glu Glu Ser Leu Tyr  
1445 1450 1455

Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile Phe Gly Ser Phe Phe  
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Thr Leu Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln  
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Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile Phe Met Thr Glu Glu  
1490 1495 1500

Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys Lys  
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Pro Gln Lys Pro Ile Pro Arg Pro Gly Asn Lys Phe Gln Gly Met  
1520 1525 1530

Val Phe Asp Phe Val Thr Arg Gln Val Phe Asp Ile Ser Ile Met  
1535 1540 1545

Ile Leu Ile Cys Leu Asn Met Val Thr Met Met Val Glu Thr Asp  
1550 1555 1560

Asp Gln Ser Glu Tyr Val Thr Thr Ile Leu Ser Arg Ile Asn Leu  
1565 1570 1575

Val Phe Ile Val Leu Phe Thr Gly Glu Cys Val Leu Lys Leu Ile  
1580 1585 1590

Ser Leu Arg His Tyr Tyr Phe Thr Ile Gly Trp Asn Ile Phe Asp  
1595 1600 1605

Phe Val Val Val Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu  
1610 1615 1620

Leu Ile Glu Lys Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile  
1625 1630 1635

Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala  
1640 1645 1650

Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro  
1655 1660 1665

Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile  
1670 1675 1680

Tyr Ala Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Arg Glu  
1685 1690 1695

Val Gly Ile Asp Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser  
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Met Ile Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly  
1715 1720 1725

Leu Leu Ala Pro Ile Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro  
1730 1735 1740

Asn Lys Val Asn Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn  
1745 1750 1755

Pro Ser Val Gly Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser  
1760 1765 1770

Phe Leu Val Val Val Asn Met Tyr Ile Ala Val Ile Leu Glu Asn  
1775 1780 1785

Phe Ser Val Ala Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu Asp  
1790 1795 1800

Asp Phe Glu Met Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp  
1805 1810 1815

Ala Thr Gln Phe Met Glu Phe Glu Lys Leu Ser Gln Phe Ala Ala  
1820 1825 1830

Ala Leu Glu Pro Pro Leu Asn Leu Pro Gln Pro Asn Lys Leu Gln  
1835 1840 1845

Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile His  
1850 1855 1860

Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu

1865

1870

1875

Ser Gly Glu Met Asp Ala Leu Arg Ile Gln Met Glu Glu Arg Phe  
 1880 1885 1890

Met Ala Ser Asn Pro Ser Lys Val Ser Tyr Gln Pro Ile Thr Thr  
 1895 1900 1905

Thr Leu Lys Arg Lys Gln Glu Glu Val Ser Ala Val Ile Ile Gln  
 1910 1915 1920

Arg Ala Tyr Arg Arg His Leu Leu Lys Arg Thr Val Lys Gln Ala  
 1925 1930 1935

Ser Phe Thr Tyr Asn Lys Asn Lys Ile Lys Gly Gly Ala Asn Leu  
 1940 1945 1950

Leu Ile Lys Glu Asp Met Ile Ile Asp Arg Ile Asn Glu Asn Ser  
 1955 1960 1965

Ile Thr Glu Lys Thr Asp Leu Thr Met Ser Thr Ala Ala Cys Pro  
 1970 1975 1980

Pro Ser Tyr Asp Arg Val Thr Lys Pro Ile Val Glu Lys His Glu  
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Gln Glu Gly Lys Asp Glu Lys Ala Lys Gly Lys  
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&lt;211&gt; 2009

&lt;212&gt; PRT

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&lt;400&gt; 4

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Phe Thr Arg Glu Ser Leu Ala Ala Ile Glu Arg Arg Ile Ala Glu Glu  
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Lys Ala Lys Asn Pro Lys Pro Asp Lys Lys Asp Asp Asp Glu Asn Gly  
 35 40 45



Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile  
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Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu  
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Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys Gly  
85 90 95

Lys Ala Ile Phe Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr  
100 105 110

Pro Phe Asn Pro Leu Arg Lys Ile Ala Ile Lys Ile Leu Val His Ser  
115 120 125

Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe  
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Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr  
145 150 155 160

Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Ile Ala Arg  
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Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp  
180 185 190

Leu Asp Phe Thr Val Ile Thr Phe Ala Phe Val Thr Glu Phe Val Asn  
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Leu Gly Asn Phe Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu  
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Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu  
225 230 235 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe  
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Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn  
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Leu Arg Asn Lys Cys Ile Gln Trp Pro Pro Thr Asn Ala Ser Leu Glu  
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Glu His Ser Ile Glu Lys Asn Ile Thr Val Asn Tyr Asn Gly Thr Leu  
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Ile Asn Glu Thr Val Phe Glu Phe Asp Trp Lys Ser Tyr Ile Gln Asp  
305 310 315 320

Ser Arg Tyr His Tyr Phe Leu Glu Gly Phe Leu Asp Ala Leu Leu Cys  
325 330 335

Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Met Cys Val  
340 345 350

Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr Phe  
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Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met  
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Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met Ile  
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Glu Gln Leu Lys Lys Gln Gln Glu Ala Ala Gln Gln Ala Ala Thr Ala  
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Thr Ala Ser Glu His Ser Arg Glu Pro Ser Ala Ala Gly Arg Leu Ser  
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485 490 495

Arg Arg Asn Arg Arg Lys Lys Arg Lys Gln Lys Glu Gln Ser Gly Gly

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505

510

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Tyr Glu Lys Arg Tyr Ser Ser Pro His Gln Ser Leu Leu Ser Ile Arg  
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Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Thr Ser Leu Phe Ser  
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Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp Phe Ala Asp  
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Asp Glu His Ser Thr Phe Glu Asp Asn Glu Ser Arg Arg Asp Ser Leu  
 595 600 605

Phe Val Pro Arg Arg His Gly Glu Arg Arg Asn Ser Asn Leu Ser Gln  
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Thr Ser Arg Ser Ser Arg Met Leu Ala Val Phe Pro Ala Asn Gly Lys  
 625 630 635 640

Met His Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Val Gly Gly  
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Pro Ser Val Pro Thr Ser Pro Val Gly Gln Leu Leu Pro Glu Val Ile  
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Ile Asp Lys Pro Ala Thr Asp Asp Asn Gly Thr Thr Thr Glu Thr Glu  
 675 680 685

Met Arg Lys Arg Arg Ser Ser Ser Phe His Val Ser Met Asp Phe Leu  
 690 695 700

Glu Asp Pro Ser Gln Arg Gln Arg Ala Met Ser Ile Ala Ser Ile Leu  
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Thr Asn Thr Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro  
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Cys Trp Tyr Lys Phe Ser Asn Ile Phe Leu Ile Trp Asp Cys Ser Pro  
740 745 750

Tyr Trp Leu Lys Val Lys His Val Val Asn Leu Val Val Met Asp Pro  
755 760 765

Phe Val Asp Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe  
770 775 780

Met Ala Met Glu His Tyr Pro Met Thr Asp His Phe Asn Asn Val Leu  
785 790 795 800

Thr Val Gly Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Phe  
805 810 815

Leu Lys Ile Ile Ala Met Asp Pro Tyr Tyr Tyr Phe Gln Glu Gly Trp  
820 825 830

Asn Ile Phe Asp Gly Phe Ile Val Thr Leu Ser Leu Val Glu Leu Gly  
835 840 845

Leu Ala Asn Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu  
850 855 860

Arg Val Phe Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile  
865 870 875 880

Lys Ile Ile Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val  
885 890 895

Leu Ala Ile Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe  
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Gly Lys Ser Tyr Lys Asp Cys Val Cys Lys Ile Ala Ser Asp Cys Gln  
915 920 925

Leu Pro Arg Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val  
930 935 940

Phe Arg Val Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met  
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Glu Val Ala Gly Gln Ala Met Cys Leu Thr Val Phe Met Met Val Met  
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Val Ile Gly Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu  
980 985 990

Ser Ser Phe Ser Ala Asp Asn Leu Ala Ala Thr Asp Asp Asp Asn Glu  
995 1000 1005

Met Asn Asn Leu Gln Ile Ala Val Asp Arg Met His Lys Gly Val  
1010 1015 1020

Ala Tyr Val Lys Arg Lys Ile Tyr Glu Phe Ile Gln Gln Ser Phe  
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Ile Arg Lys Gln Lys Ile Leu Asp Glu Ile Lys Pro Leu Asp Asp  
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Ile Gly Lys Asp Leu Asp Tyr Leu Lys Asp Val Asn Gly Thr Thr  
1070 1075 1080

Ser Gly Ile Gly Thr Gly Ser Ser Val Glu Lys Tyr Ile Ile Asp  
1085 1090 1095

Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val  
1100 1105 1110

Thr Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn  
1115 1120 1125

Thr Glu Asp Phe Ser Ser Glu Ser Asp Leu Glu Glu Ser Lys Glu  
1130 1135 1140

Lys Leu Asn Glu Ser Ser Ser Ser Ser Glu Gly Ser Thr Val Asp  
1145 1150 1155

Ile Gly Ala Pro Val Glu Glu Gln Pro Val Val Glu Pro Glu Glu  
1160 1165 1170

Thr	Leu	Glu	Pro	Glu	Ala	Cys	Phe	Thr	Glu	Gly	Cys	Val	Gln	Arg
1175						1180					1185			
Phe	Lys	Cys	Cys	Gln	Ile	Asn	Val	Glu	Glu	Gly	Arg	Gly	Lys	Gln
1190						1195					1200			
Trp	Trp	Asn	Leu	Arg	Arg	Thr	Cys	Phe	Arg	Ile	Val	Glu	His	Asn
1205						1210					1215			
Trp	Phe	Glu	Thr	Phe	Ile	Val	Phe	Met	Ile	Leu	Leu	Ser	Ser	Gly
1220						1225					1230			
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1235						1240					1245			
Lys	Thr	Met	Leu	Glu	Tyr	Ala	Asp	Lys	Val	Phe	Thr	Tyr	Ile	Phe
1250						1255					1260			
Ile	Leu	Glu	Met	Leu	Leu	Lys	Trp	Val	Ala	Tyr	Gly	Tyr	Gln	Thr
1265						1270					1275			
Tyr	Phe	Thr	Asn	Ala	Trp	Cys	Trp	Leu	Asp	Phe	Leu	Ile	Val	Asp
1280						1285					1290			
Val	Ser	Leu	Val	Ser	Leu	Thr	Ala	Asn	Ala	Leu	Gly	Tyr	Ser	Glu
1295						1300					1305			
Leu	Gly	Ala	Ile	Lys	Ser	Leu	Arg	Thr	Leu	Arg	Ala	Leu	Arg	Pro
1310						1315					1320			
Leu	Arg	Ala	Leu	Ser	Arg	Phe	Glu	Gly	Met	Arg	Val	Val	Val	Asn
1325						1330					1335			
Ala	Leu	Leu	Gly	Ala	Ile	Pro	Ser	Ile	Met	Asn	Val	Leu	Leu	Val
1340						1345					1350			
Cys	Leu	Ile	Phe	Trp	Leu	Ile	Phe	Ser	Ile	Met	Gly	Val	Asn	Leu
1355						1360					1365			
Phe	Ala	Gly	Lys	Phe	Tyr	His	Cys	Ile	Asn	Thr	Thr	Thr	Gly	Asp
1370						1375					1380			
Arg	Phe	Asp	Ile	Glu	Asp	Val	Asn	Asn	His	Thr	Asp	Cys	Leu	Lys

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Leu Ile	Glu Arg Asn Glu Thr	Ala Arg Trp Lys	Asn Val Lys Val	
1400		1405	1410	
Asn Phe	Asp Asn Val Gly Phe	Gly Tyr Leu Ser	Leu Leu Gln Val	
1415		1420	1425	
Ala Thr	Phe Lys Gly Trp Met	Asp Ile Met Tyr	Ala Ala Val Asp	
1430		1435	1440	
Ser Arg	Asn Val Glu Leu Gln	Pro Lys Tyr Glu	Glu Ser Leu Tyr	
1445		1450	1455	
Met Tyr	Leu Tyr Phe Val Ile	Phe Ile Ile Phe	Gly Ser Phe Phe	
1460		1465	1470	
Thr Leu	Asn Leu Phe Ile Gly	Val Ile Ile Asp	Asn Phe Asn Gln	
1475		1480	1485	
Gln Lys	Lys Lys Phe Gly Gly	Gln Asp Ile Phe	Met Thr Glu Glu	
1490		1495	1500	
Gln Lys	Lys Tyr Tyr Asn Ala	Met Lys Lys Leu	Gly Ser Lys Lys	
1505		1510	1515	
Pro Gln	Lys Pro Ile Pro Arg	Pro Gly Asn Lys	Phe Gln Gly Met	
1520		1525	1530	
Val Phe	Asp Phe Val Thr Arg	Gln Val Phe Asp	Ile Ser Ile Met	
1535		1540	1545	
Ile Leu	Ile Cys Leu Asn Met	Val Thr Met Met	Val Glu Thr Asp	
1550		1555	1560	
Asp Gln	Ser Glu Tyr Val Thr	Thr Ile Leu Ser	Arg Ile Asn Leu	
1565		1570	1575	
Val Phe	Ile Val Leu Phe Thr	Gly Glu Cys Val	Leu Lys Leu Ile	
1580		1585	1590	
Ser Leu	Arg His Tyr Tyr Phe	Thr Ile Gly Trp	Asn Ile Phe Asp	
1595		1600	1605	

Phe Val Val Val Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu  
1610 1615 1620

Leu Ile Glu Lys Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile  
1625 1630 1635

Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala  
1640 1645 1650

Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro  
1655 1660 1665

Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile  
1670 1675 1680

Tyr Ala Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Arg Glu  
1685 1690 1695

Val Gly Ile Asp Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser  
1700 1705 1710

Met Ile Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly  
1715 1720 1725

Leu Leu Ala Pro Ile Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro  
1730 1735 1740

Asn Lys Val Asn Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn  
1745 1750 1755

Pro Ser Val Gly Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser  
1760 1765 1770

Phe Leu Val Val Val Asn Met Tyr Ile Ala Val Ile Leu Glu Asn  
1775 1780 1785

Phe Ser Val Ala Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu Asp  
1790 1795 1800

Asp Phe Glu Met Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp  
1805 1810 1815



Ala Thr Gln Phe Met Glu Phe Glu Lys Leu Ser Gln Phe Ala Ala  
 1820 1825 1830

Ala Leu Glu Pro Pro Leu Asn Leu Pro Gln Pro Asn Lys Leu Gln  
 1835 1840 1845

Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile His  
 1850 1855 1860

Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu  
 1865 1870 1875

Ser Gly Glu Met Asp Ala Leu Arg Ile Gln Met Glu Glu Arg Phe  
 1880 1885 1890

Met Ala Ser Asn Pro Ser Lys Val Ser Tyr Gln Pro Ile Thr Thr  
 1895 1900 1905

Thr Leu Lys Arg Lys Gln Glu Glu Val Ser Ala Val Ile Ile Gln  
 1910 1915 1920

Arg Ala Tyr Arg Arg His Leu Leu Lys Arg Thr Val Lys Gln Ala  
 1925 1930 1935

Ser Phe Thr Tyr Asn Lys Asn Lys Ile Lys Gly Gly Ala Asn Leu  
 1940 1945 1950

Leu Ile Lys Glu Asp Met Ile Ile Asp Arg Ile Asn Glu Asn Ser  
 1955 1960 1965

Ile Thr Glu Lys Thr Asp Leu Thr Met Ser Thr Ala Ala Cys Pro  
 1970 1975 1980

Pro Ser Tyr Asp Arg Val Thr Lys Pro Ile Val Glu Lys His Glu  
 1985 1990 1995

Gln Glu Gly Lys Asp Glu Lys Ala Lys Gly Lys  
 2000 2005

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aggttgagga agaaatcata aatctggatt gtgagaaagt gtttaatat tagccactag 240  
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aacaattgca actgaaggca cattgttatc atctcgtcct tgggtgatgc tgttcctcac 540  
tgcagatgga taattttcct tttaatcagg taagccatct aattgtttca tcttgatttt 600  
aagttttattc attccagtta ttcctttgga aaaagagtcc atggaaattc agtttgggca 660  
gagcaggaag tccatttttg tatgtgtatt cagaccaact gtccccctcc tccctctcct 720  
cctcttcttg tccccctccc cgcgccctcc tctctcaacc ttccatgaac tgaaatcagg 780  
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<212> DNA  
<213> Homo sapiens

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caggacctga cagcttcaac ttcttcacca gagaatctct tgccggctatt gaaagacgca 180  
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cccaaagcaa atagtgactt ggaagctgga aagaaccttc catttattta tggagacatt 300  
cctccagaga tgggtgcaga gccctggag gacctggacc cctactatat caataagaaa 360  
gtgagtgttt tttttatcag gcatattttt gctgctaatt gcctactgca ttccttggac 420  
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agtttaagtg gtttatactt tcatacttct atgttggtgtt cctgtcttac agacttttat 180  
agtattgaat aaaggggaagg ccatcttccg gttcagtgcc acctctgccc tgtacatttt 240  
aactcccttc aatcctctta ggaaaatagc tattaagatt ttggtacatt catatccttt 300  
ttcaagtgat taatattaac tatttgtaga tgatctgtaa gcactttata gctaaatatc 360  
aaattaagtt gggaaatgtc catattatat aggtttcatc actctcattt tgcactcttg 420  
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<210> 8  
<211> 501  
<212> DNA  
<213> Homo sapiens

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tatccctgaa ttttggctaa gctgcagttt gggcttttca atgttagctt tttgtaatat 180  
aacacttgga ttttgatttt cttttgtgtg ttccttaaca ataacctaca ttattcagca 240  
tgctaattat gtgcactatt ttgacaaact gtgtgtttat gacaatgagt aacctcctg 300  
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gattytgaaa ctgtgtctta atgtagtctt aaaataaaac tgaagagcat ttatttaaag 420  
tcattcctag acaaaattac gcagcaagag gacaatgctc attggccctc aggccctgctg 480  
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aaaateccatc tgcttagttt tcttttttag tatttatcta ttccactgat ggagtataa	180
gaaattggta tgctatgaaa aaacactgtt actttatcaa attttttgga tgcttgtttt	240
cagatacacc ttcacaggaa tatatacttt tgaatcactt ataaaaatta ttgcaagggg	300
attctgttta gaagatttta ctttccttcg ggatccatgg aactggctcg atttcactgt	360
cattacattt gcgtaagtgc ctttbytgaa actttaagag agaacatagt ttgggtttcc	420
atcagtgtt atgcttttaa gaataggttt gctttacctg tagaatattt ttgtgtgatt	480
tatacattca aactctggat ttcaatttag cacaacaaag gtctaagtgg aatttcacta	540
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agtcttgaga gctttgaaaa ctatttcggt aattccaggt aagaagtgat tagagtaaag	180
gataggctct ttgtacctac agctttttct ttgtgtcctg tttttgtgtt tgtgtgtgaa	240
ctcccgtta cag	253

<210> 11  
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 <212> DNA  
 <213> Homo sapiens

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ggcaatgtct cggcattgag aacattcaga gttctccgag cattgaagac gatttcagtc	180
attccagggt agagcaaggt tagataatga gacggacca tcatgtgatt cagcatcctt	240
ctctgcttga cattcagttt tacagaaaat caggaatcat aagactagggt gttcaaagaa	300
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<210> 12  
<211> 409  
<212> DNA  
<213> Homo sapiens

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tgagcgtatt tgctctaatt gggctgcagc tgttcattggg caacctgagg aataaatgta 180  
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tgaattataa tggtagactt ataaatgaaa ctgtctttga gtttgactgg aagtcataata 300  
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<210> 13  
<211> 266  
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<213> Homo sapiens

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cgactttctt ttttcaaaca ggatatcatt atttcctgga gggtttttta gatgcactac 180  
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<210> 14  
<211> 604  
<212> DNA  
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tctccattta agtaaaagta tacaagaaaa ccaattgagt tatgaaatta aaaccggatg	480
ataatatagt agaaagagca gaacttgaca cgagacttga gttcctctat cctattgatt	540
ataacacata ctgagcagag tgatgccaaag gattgcaatt ctctcccatt tcttcttggc	600
tcaa	604

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 <212> DNA  
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acatgatatt ttttgtattg gtcattttct tgggctcatt ctacctaata aatttgatcc	180
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tagtctagag cgtgtgat	378

<210> 16  
 <211> 845  
 <212> DNA  
 <213> Homo sapiens

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agaaaaaaaa aatctcctct tatacttgca gagaatcttc tctgtgagat gatcttcagt	240
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aactgaatca accactgttg tggttatattt aaacccatcc cttcttcaca tagttatgca	780
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tgaca	845

<210> 17  
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 <212> DNA  
 <213> Homo sapiens

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 <212> DNA  
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tgtgtttcat gaaattcact gtgtcaccat ttgggtggtt gcttgtcata ttgctcaaat 240  
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<210> 19  
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<212> DNA  
<213> Homo sapiens

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tatttagctg gctatactct acttttttgc caaaaataat cacccttaat gtgctcacia 720  
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ttttcaggat ccagaagtag ctcatagatt aagaacat 818



<210> 20  
<211> 645  
<212> DNA  
<213> Homo sapiens

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aactacaaat tgccatacaa atttaagtta gtaatagaat cattgtggga aaatagcata 180  
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<210> 21  
<211> 829  
<212> DNA  
<213> Homo sapiens

<400> 21  
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aacgttaaatt atgctaataa agatcatcgg caattcogtg ggggctctgg gaaatttaac 180  
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gaatgacttc ttccactcck hccgtattgt gttccgcgtg ctgtgtgggg agtggataga 360  
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ggcatgggtg attggaaacc tagcggtatg taccactta agatatgcat tttggaaata 480  
caccagcatg gcacatgtat acatatgtaa ctaacctgca cattgtgcac atgtacccta 540  
aaacttaaag tataataaaa aaaaagagta taatttaatg gtgactgttt tgtcaaaaag 600

aaaaacaaac	tatgattatt	ggtttaaaag	tccattacct	tgatatatt	atcactttaa	660
caacacagca	atatabcagt	gcccctgc	at	ttttataacc	aaattctatt	720
ctttatcaca	ttttttatgt	gaattacaat	agagtatcat	attgagatga	gcctaaaagg	780
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<210> 22  
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 <212> DNA  
 <213> Homo sapiens

<400> 22						
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agaaatcatg	tctttgtcca	aggatgtgct	attgagccag	tcacaaattc	agatcaccca	180
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tccacactta	aaagaaagaa	taagtgattg	taatctgctc	ttccctacat	tggtgtaaaa	300
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<210> 23  
 <211> 516  
 <212> DNA  
 <213> Homo sapiens

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 <223> n = a, c, t or g

<220>  
 <221> misc\_feature  
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<220>  
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 <223> N = a, c, t or g

<220>  
 <221> misc\_feature  
 <222> (513)..(513)  
 <223> n = a, c, t or g

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 aaattcatag taataatcct tcttggcagg caacttatta ccaaaattaa ggactttact 180  
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 ctgtggacat cggcgcacct gtagaagaac agcccgtagt ggaacctgaa gaaactcttg 300  
 aaccogaagc ttgtttcact gaaggtaaag aaaagaatcc taatgttaat ctttcatttg 360  
 gagtgcagct tathtagctg ttggtcagct aanataaatc acatataata aaatngcact 420  
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<210> 24  
 <211> 640  
 <212> DNA  
 <213> Homo sapiens

<400> 24  
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 gacaaggaca ttgctaaagg atattatgga agcagagaca ctttatctac ttttatttca 180  
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<210> 25  
 <211> 607  
 <212> DNA  
 <213> Homo sapiens

<400> 25	
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ttgcgaggaa aaaaaaaaaag taacagtaac tactgtttct ctgccctcct attccaatga	180
aatgtcatat gcatatgatt aattttttta atagcttatg gagtataatt atttttgaaa	240
gctaataatg tgtaacattt tctttatagg catttgaaga tatatatatt gaycagcgaa	300
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gcttgtctta tttatattca aattctacaa tagtgagtct cagaccacta tgttatgttg	540
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gggctaa	607

<210> 26  
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 <212> DNA  
 <213> Homo sapiens

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agccttatct cgatttgaag ggatgagggg aagaaaaatg aaagaacctg aagtattgta	240
tatagccaaa attaaactaa attaaattta gaaaaaagga aaaatgtatg catgcaaaa	300

gaatggcaaa ttcttgcaaa atgctcttta ttgttt 336

<210> 27

<211> 677

<212> DNA

<213> Homo sapiens

<400> 27

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aaagaatgga aagaccagag attactaggg gaattttttt tctttattaa cagataagaa 180

ttctgacttt tctttttttc catttgtgta ttaggtggtt gtgaatgccc ttttaggagc 240

aattccatcc atcatgaatg tgcttctggt ttgtcttata ttctggctaa ttttcagcat 300

catgggcgta aatttgtttg ctggcaaatt ctaccactgt attaacacca caactggtga 360

caggtttgac atcgaagacg tgaataatca tactgattgc ctaaaaactaa tagaaagaaa 420

tgagactgct cgatggaaaa atgtgaaagt aaactttgat aatgtaggat ttgggtatct 480

ctctttgctt caagttgtaa gtgaacacta ttttctctga atatttttat tgtttggaat 540

aataacaaaa taatgacata catctattat ttagttccta agaaaaagta tatatttctt 600

tctattttaa aaatttcaat ttgttagtac aagtttatga gccagatgg gtgaaaactt 660

tattacatgt aaggact 677

<210> 28

<211> 457

<212> DNA

<213> Homo sapiens

<400> 28

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attatatcag taagaatatt tattaacat caggtctaaa ttattttttac tccaaagtaa 180

aacatgcatg tccttcttaa taggccacat tcaaaggatg gatggatata atgtatgcag 240

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aaaatatttg ggaaaaagtg tgacaggtaa atattcaagc atagcaatgt ttatcagaaa 420

gatcttacta agataattca acacatgaat tattttg 457

<210> 29  
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<212> DNA  
<213> Homo sapiens

<220>  
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<223> n = a, c, t or g

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attttcatca tctttgggtc cttcttcacc ttgaacctgt ttattggtgt catcatagat 240  
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ggagtatata ttataactg 379

<210> 30  
<211> 393  
<212> DNA  
<213> Homo sapiens

<400> 30  
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gccatccatt ttctatttta acattgaaaa aaatgtacaa aaggacacag ttttaaccag 180  
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ccaggagtaa gaagtatcaa atgatatggg ggaaaataca aaaacaaaaa ctgcatgctt 360  
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<210> 31  
<211> 539  
<212> DNA  
<213> Homo sapiens

<400> 31  
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<210> 32  
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 <212> DNA  
 <213> Homo sapiens

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attctcattg tttattcata ggtatgtttc ttgccgagct gatagaaaag tatttcgtgt	180
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 <212> DNA  
 <213> Homo sapiens

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tccaacctta attgaacact caatgatgaa aagcccagct gtacaaacat gttgcaagct	7620

gcttaaactct gtttaaaata tatgggttaga gttttctaag aaaatataaa tactgtaaaa 7680  
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gctttcaata gtaatgcctt atcattgaaa gaggcctaaa gaaaaaaaa atcagctgat 7980  
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atcagatata atatgggatc ccagcttttt ttctctctcc acaaaaccag gtagtgaagt 8160  
tatattacca gttacagcaa aatactttgt gtttcacaag caacaataaa ttagattctt 8220  
ttatactgaa gctattgact ttagtgtgtg tggatgaatgc atgcaggaag atgctgttac 8280  
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Met Ala Gln Ser Val Leu Val Pro Pro Gly Pro Asp Ser Phe Arg Phe  
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Phe Thr Arg Glu Ser Leu Ala Ala Ile Glu Gln Arg Ile Ala Glu Glu  
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Lys Ala Lys Arg Pro Lys Gln Glu Arg Lys Asp Glu Asp Asp Glu Asn  
35 40 45

Gly Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Ser Leu Pro Phe  
50 55 60

Ile Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Val Pro Leu Glu Asp  
65 70 75 80

Leu Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys  
85 90 95

Gly Lys Ala Ile Ser Arg Phe Ser Ala Thr Pro Ala Leu Tyr Ile Leu  
100 105 110

Thr Pro Phe Asn Pro Ile Arg Lys Leu Ala Ile Lys Ile Leu Val His  
115 120 125

Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val  
130 135 140

Phe Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr  
145 150 155 160

Thr Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala  
165 170 175

Arg Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn  
180 185 190

Trp Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val  
195 200 205

Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala  
210 215 220

Leu Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala  
225 230 235 240

Leu Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val  
245 250 255

Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly  
260 265 270

Asn Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Asp Asn Ser Ser Phe  
275 280 285

Glu Ile Asn Ile Thr Ser Phe Phe Asn Asn Ser Leu Asp Gly Asn Gly  
290 295 300

Thr Thr Phe Asn Arg Thr Val Ser Ile Phe Asn Trp Asp Glu Tyr Ile  
305 310 315 320

Glu Asp Lys Ser His Phe Tyr Phe Leu Glu Gly Gln Asn Asp Ala Leu  
325 330 335

Leu Cys Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile  
340 345 350

Cys Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp  
355 360 365

Thr Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp  
370 375 380

Phe Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr  
385 390 395 400

Tyr Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu  
405 410 415

Ile Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn  
420 425 430

Gln Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln  
435 440 445

Met Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Ala Ala  
450 455 460

Ala Ala Ala Ser Ala Glu Ser Arg Asp Phe Ser Gly Ala Gly Gly Ile  
465 470 475 480

Gly Val Phe Ser Glu Ser Ser Ser Val Ala Ser Lys Leu Ser Ser Lys  
485 490 495

Ser Glu Lys Glu Leu Lys Asn Arg Arg Lys Lys Lys Lys Gln Lys Glu  
500 505 510

Gln Ser Gly Glu Glu Glu Lys Asn Asp Arg Val Leu Lys Ser Glu Ser  
515 520 525

Glu Asp Ser Ile Arg Arg Lys Gly Phe Arg Phe Ser Leu Glu Gly Ser  
530 535 540

Arg Leu Thr Tyr Glu Lys Arg Phe Ser Ser Pro His Gln Ser Leu Leu

545                      550                      555                      560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Ala Ser  
565                      570                      575

Leu Phe Ser Phe Arg Gly Arg Ala Lys Asp Ile Gly Ser Glu Asn Asp  
580                      585                      590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Asn Asp Ser Arg Arg  
595                      600                      605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg His Ser Asn  
610                      615                      620

Val Ser Gln Ala Ser Arg Ala Ser Arg Val Leu Pro Ile Leu Pro Met  
625                      630                      635                      640

Asn Gly Lys Met His Ser Ala Val Asp Cys Asn Gly Val Val Ser Leu  
645                      650                      655

Val Gly Gly Pro Ser Thr Leu Thr Ser Ala Gly Gln Leu Leu Pro Glu  
660                      665                      670

Gly Thr Thr Thr Glu Thr Glu Ile Arg Lys Arg Arg Ser Ser Ser Tyr  
675                      680                      685

His Val Ser Met Asp Leu Leu Glu Asp Pro Thr Ser Arg Gln Arg Ala  
690                      695                      700

Met Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu  
705                      710                      715                      720

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Lys Phe Ala Asn Met Cys  
725                      730                      735

Leu Ile Trp Asp Cys Cys Lys Pro Trp Leu Lys Val Lys His Leu Val  
740                      745                      750

Asn Leu Val Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys  
755                      760                      765

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr  
770                      775                      780

Glu Gln Phe Ser Ser Val Leu Ser Val Gly Asn Leu Val Phe Thr Gly  
785 790 795 800

Ile Phe Thr Ala Glu Met Phe Leu Lys Ile Ile Ala Met Asp Pro Tyr  
805 810 815

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Phe Ile Val Ser  
820 825 830

Leu Ser Leu Met Glu Leu Gly Leu Ala Asn Val Glu Gly Leu Ser Val  
835 840 845

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp  
850 855 860

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala  
865 870 875 880

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala  
885 890 895

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys  
900 905 910

Lys Ile Ser Asn Asp Cys Glu Leu Pro Arg Trp His Met His Asp Phe  
915 920 925

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile  
930 935 940

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu  
945 950 955 960

Thr Val Phe Met Met Val Met Val Ile Gly Asn Leu Val Val Leu Asn  
965 970 975

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala  
980 985 990

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly  
995 1000 1005

Arg Met Gln Lys Gly Ile Asp Phe Val Lys Arg Lys Ile Arg Glu  
1010 1015 1020

Phe Ile Gln Lys Ala Phe Val Arg Lys Gln Lys Ala Leu Asp Glu  
1025 1030 1035

Ile Lys Pro Leu Glu Asp Leu Asn Asn Lys Lys Asp Ser Cys Ile  
1040 1045 1050

Ser Asn His Thr Thr Ile Glu Ile Gly Lys Asp Leu Asn Tyr Leu  
1055 1060 1065

Lys Asp Gly Asn Gly Thr Thr Ser Gly Ile Gly Ser Ser Val Glu  
1070 1075 1080

Lys Tyr Val Val Asp Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn  
1085 1090 1095

Pro Ser Leu Thr Val Thr Val Pro Ile Ala Val Gly Glu Ser Asp  
1100 1105 1110

Phe Glu Asn Leu Asn Thr Glu Glu Phe Ser Ser Glu Ser Asp Met  
1115 1120 1125

Glu Glu Ser Lys Glu Lys Leu Asn Ala Thr Ser Ser Ser Glu Gly  
1130 1135 1140

Ser Thr Val Asp Ile Gly Ala Pro Ala Glu Gly Glu Gln Pro Glu  
1145 1150 1155

Val Glu Pro Glu Glu Ser Leu Glu Pro Glu Ala Cys Phe Thr Glu  
1160 1165 1170

Asp Cys Val Arg Lys Phe Lys Cys Cys Gln Ile Ser Ile Glu Glu  
1175 1180 1185

Gly Lys Gly Lys Leu Trp Trp Asn Leu Arg Lys Thr Cys Tyr Lys  
1190 1195 1200

Ile Val Glu His Asn Trp Phe Glu Thr Phe Ile Val Phe Met Ile  
1205 1210 1215



Leu Leu Ser Ser Gly Ala Leu Ala Phe Glu Asp Ile Tyr Ile Glu  
1220 1225 1230

Gln Arg Lys Thr Ile Lys Thr Met Leu Glu Tyr Ala Asp Lys Val  
1235 1240 1245

Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu Lys Trp Val Ala  
1250 1255 1260

Tyr Gly Phe Gln Val Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp  
1265 1270 1275

Phe Leu Ile Val Asp Val Ser Leu Val Ser Leu Thr Ala Asn Ala  
1280 1285 1290

Leu Gly Tyr Ser Glu Leu Gly Ala Ile Lys Ser Leu Arg Thr Leu  
1295 1300 1305

Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met  
1310 1315 1320

Arg Ala Val Val Asn Ala Leu Leu Gly Ala Ile Pro Ser Ile Met  
1325 1330 1335

Asn Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile  
1340 1345 1350

Met Gly Val Asn Leu Phe Ala Gly Lys Phe Tyr His Cys Ile Asn  
1355 1360 1365

Tyr Thr Thr Gly Glu Met Phe Asp Val Ser Val Val Asn Asn Tyr  
1370 1375 1380

Ser Glu Cys Lys Ala Leu Ile Glu Ser Asn Gln Thr Ala Arg Trp  
1385 1390 1395

Lys Asn Val Lys Val Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu  
1400 1405 1410

Ser Leu Leu Gln Val Ala Thr Phe Lys Gly Trp Met Asp Ile Met  
1415 1420 1425

Tyr Ala Ala Val Asp Ser Arg Asn Val Glu Leu Gln Pro Lys Tyr

1430		1435		1440
Glu Asp Asn Leu Tyr Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile				
1445		1450		1455
Phe Gly Ser Phe Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile				
1460		1465		1470
Asp Asn Phe Asn Gln Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile				
1475		1480		1485
Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys				
1490		1495		1500
Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg Pro Ala Asn				
1505		1510		1515
Lys Phe Gln Gly Met Val Phe Asp Phe Val Thr Lys Gln Val Phe				
1520		1525		1530
Asp Ile Ser Ile Met Ile Leu Ile Cys Leu Asn Met Val Thr Met				
1535		1540		1545
Met Val Glu Thr Asp Asp Gln Ser Gln Glu Met Thr Asn Ile Leu				
1550		1555		1560
Tyr Trp Ile Asn Leu Val Phe Ile Val Leu Phe Thr Gly Glu Cys				
1565		1570		1575
Val Leu Lys Leu Ile Ser Leu Arg Tyr Tyr Tyr Phe Thr Ile Gly				
1580		1585		1590
Trp Asn Ile Phe Asp Phe Val Val Val Ile Leu Ser Ile Val Gly				
1595		1600		1605
Met Phe Leu Ala Glu Leu Ile Glu Lys Tyr Phe Val Ser Pro Thr				
1610		1615		1620
Leu Phe Arg Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg				
1625		1630		1635
Leu Ile Lys Gly Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu				
1640		1645		1650

Met Met Ser Leu Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe  
1655 1660 1665

Leu Val Met Phe Ile Tyr Ala Ile Phe Gly Met Ser Asn Phe Ala  
1670 1675 1680

Tyr Val Lys Arg Glu Val Gly Ile Asp Asp Met Phe Asn Phe Glu  
1685 1690 1695

Thr Phe Gly Asn Ser Met Ile Cys Leu Phe Gln Ile Thr Thr Ser  
1700 1705 1710

Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile Leu Asn Ser Gly Pro  
1715 1720 1725

Pro Asp Cys Asp Pro Asp Lys Asp His Pro Gly Ser Ser Val Lys  
1730 1735 1740

Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Phe Phe Val Ser  
1745 1750 1755

Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr Ile Ala  
1760 1765 1770

Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Ala Glu  
1775 1780 1785

Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu  
1790 1795 1800

Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ala Lys Leu  
1805 1810 1815

Ser Asp Phe Ala Asp Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys  
1820 1825 1830

Pro Asn Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser  
1835 1840 1845

Gly Asp Arg Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys  
1850 1855 1860

Arg Val Leu Gly Glu Ser Gly Glu Met Asp Ala Leu Arg Ile Gln  
1865 1870 1875

Met Glu Glu Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr  
1880 1885 1890

Glu Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser  
1895 1900 1905

Ala Ile Ile Ile Gln Arg Ala Tyr Arg Arg Tyr Leu Leu Lys Gln  
1910 1915 1920

Lys Val Lys Lys Val Ser Ser Ile Tyr Lys Lys Asp Lys Gly Lys  
1925 1930 1935

Glu Cys Asp Gly Thr Pro Ile Lys Glu Asp Thr Leu Ile Asp Lys  
1940 1945 1950

Leu Asn Glu Asn Ser Thr Pro Glu Lys Thr Asp Met Thr Pro Ser  
1955 1960 1965

Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys Pro Glu Lys  
1970 1975 1980

Glu Lys Phe Glu Lys Asp Lys Ser Glu Lys Glu Asp Lys Gly Lys  
1985 1990 1995

Asp Ile Arg Glu Ser Lys Lys  
2000 2005

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Lys Ala Lys Arg Pro Lys Gln Glu Arg Lys Asp Glu Asp Asp Glu Asn

35	40	45																	
Gly	Pro	Lys	Pro	Asn	Ser	Asp	Leu	Glu	Ala	Gly	Lys	Ser	Leu	Pro	Phe				
50						55					60								
Ile	Tyr	Gly	Asp	Ile	Pro	Pro	Glu	Met	Val	Ser	Val	Pro	Leu	Glu	Asp				
65					70					75					80				
Leu	Asp	Pro	Tyr	Tyr	Ile	Asn	Lys	Lys	Thr	Phe	Ile	Val	Leu	Asn	Lys				
				85					90					95					
Gly	Lys	Ala	Ile	Ser	Arg	Phe	Ser	Ala	Thr	Pro	Ala	Leu	Tyr	Ile	Leu				
			100					105					110						
Thr	Pro	Phe	Asn	Pro	Ile	Arg	Lys	Leu	Ala	Ile	Lys	Ile	Leu	Val	His				
		115					120					125							
Ser	Leu	Phe	Asn	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	Cys	Val				
	130					135					140								
Phe	Met	Thr	Met	Ser	Asn	Pro	Pro	Asp	Trp	Thr	Lys	Asn	Val	Glu	Tyr				
145					150					155					160				
Thr	Phe	Thr	Gly	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Ile	Lys	Ile	Leu	Ala				
			165						170					175					
Arg	Gly	Phe	Cys	Leu	Glu	Asp	Phe	Thr	Phe	Leu	Arg	Asp	Pro	Trp	Asn				
			180					185					190						
Trp	Leu	Asp	Phe	Thr	Val	Ile	Thr	Phe	Ala	Tyr	Val	Thr	Glu	Phe	Val				
	195						200					205							
Asn	Leu	Gly	Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	Arg	Ala				
	210					215					220								
Leu	Lys	Thr	Ile	Ser	Val	Ile	Pro	Gly	Leu	Lys	Thr	Ile	Val	Gly	Ala				
225					230					235					240				
Leu	Ile	Gln	Ser	Val	Lys	Lys	Leu	Ser	Asp	Val	Met	Ile	Leu	Thr	Val				
				245					250					255					
Phe	Cys	Leu	Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly				
			260					265					270						

Asn Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Asp Asn Ser Ser Phe  
275 280 285

Glu Ile Asn Ile Thr Ser Phe Phe Asn Asn Ser Leu Asp Gly Asn Gly  
290 295 300

Thr Thr Phe Asn Arg Thr Val Ser Ile Phe Asn Trp Asp Glu Tyr Ile  
305 310 315 320

Glu Asp Lys Ser His Phe Tyr Phe Leu Glu Gly Gln Asn Asp Ala Leu  
325 330 335

Leu Cys Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile  
340 345 350

Cys Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp  
355 360 365

Thr Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp  
370 375 380

Phe Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr  
385 390 395 400

Tyr Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu  
405 410 415

Ile Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn  
420 425 430

Gln Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln  
435 440 445

Met Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Ala Ala  
450 455 460

Ala Ala Ala Ser Ala Glu Ser Arg Asp Phe Ser Gly Ala Gly Gly Ile  
465 470 475 480

Gly Val Phe Ser Glu Ser Ser Ser Val Ala Ser Lys Leu Ser Ser Lys  
485 490 495

Ser Glu Lys Glu Leu Lys Asn Arg Arg Lys Lys Lys Lys Gln Lys Glu  
500 505 510

Gln Ser Gly Glu Glu Glu Lys Asn Asp Arg Val Leu Lys Ser Glu Ser  
515 520 525

Glu Asp Ser Ile Arg Arg Lys Gly Phe Arg Phe Ser Leu Glu Gly Ser  
530 535 540

Arg Leu Thr Tyr Glu Lys Arg Phe Ser Ser Pro His Gln Ser Leu Leu  
545 550 555 560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Ala Ser  
565 570 575

Leu Phe Ser Phe Arg Gly Arg Ala Lys Asp Ile Gly Ser Glu Asn Asp  
580 585 590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Asn Asp Ser Arg Arg  
595 600 605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg His Ser Asn  
610 615 620

Val Ser Gln Ala Ser Arg Ala Ser Arg Val Leu Pro Ile Leu Pro Met  
625 630 635 640

Asn Gly Lys Met His Ser Ala Val Asp Cys Asn Gly Val Val Ser Leu  
645 650 655

Val Gly Gly Pro Ser Thr Leu Thr Ser Ala Gly Gln Leu Leu Pro Glu  
660 665 670

Gly Thr Thr Thr Glu Thr Glu Ile Arg Lys Arg Arg Ser Ser Ser Tyr  
675 680 685

His Val Ser Met Asp Leu Leu Glu Asp Pro Thr Ser Arg Gln Arg Ala  
690 695 700

Met Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu  
705 710 715 720

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Lys Phe Ala Asn Met Cys  
725 730 735

Leu Ile Trp Asp Cys Cys Lys Pro Trp Leu Lys Val Lys His Leu Val  
740 745 750

Asn Leu Val Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys  
755 760 765

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr  
770 775 780

Glu Gln Phe Ser Ser Val Leu Ser Val Gly Asn Leu Val Phe Thr Gly  
785 790 795 800

Ile Phe Thr Ala Glu Met Phe Leu Lys Ile Ile Ala Met Asp Pro Tyr  
805 810 815

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Phe Ile Val Ser  
820 825 830

Leu Ser Leu Met Glu Leu Gly Leu Ala Asn Val Glu Gly Leu Ser Val  
835 840 845

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp  
850 855 860

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala  
865 870 875 880

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala  
885 890 895

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys  
900 905 910

Lys Ile Ser Asn Asp Cys Glu Leu Pro Arg Trp His Met His Asp Phe  
915 920 925

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile  
930 935 940

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu



945		950		955		960
Thr Val Phe Met Met Val Met Val Ile Gly Asn Leu Val Val Leu Asn						
	965			970		975
Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala						
	980		985			990
Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly						
	995		1000		1005	
Arg Met Gln Lys Gly Ile Asp Phe Val Lys Arg Lys Ile Arg Glu						
	1010		1015		1020	
Phe Ile Gln Lys Ala Phe Val Arg Lys Gln Lys Ala Leu Asp Glu						
	1025		1030		1035	
Ile Lys Pro Leu Glu Asp Leu Asn Asn Lys Lys Asp Ser Cys Ile						
	1040		1045		1050	
Ser Asn His Thr Thr Ile Glu Ile Gly Lys Asp Leu Asn Tyr Leu						
	1055		1060		1065	
Lys Asp Gly Asn Gly Thr Thr Ser Gly Ile Gly Ser Ser Val Glu						
	1070		1075		1080	
Lys Tyr Val Val Asp Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn						
	1085		1090		1095	
Pro Ser Leu Thr Val Thr Val Pro Ile Ala Val Gly Glu Ser Asp						
	1100		1105		1110	
Phe Glu Asn Leu Asn Thr Glu Glu Phe Ser Ser Glu Ser Asp Met						
	1115		1120		1125	
Glu Glu Ser Lys Glu Lys Leu Asn Ala Thr Ser Ser Ser Glu Gly						
	1130		1135		1140	
Ser Thr Val Asp Ile Gly Ala Pro Ala Glu Gly Glu Gln Pro Glu						
	1145		1150		1155	
Val Glu Pro Glu Glu Ser Leu Glu Pro Glu Ala Cys Phe Thr Glu						
	1160		1165		1170	

Asp Cys Val Arg Lys Phe Lys Cys Cys Gln Ile Ser Ile Glu Glu  
1175 1180 1185

Gly Lys Gly Lys Leu Trp Trp Asn Leu Arg Lys Thr Cys Tyr Lys  
1190 1195 1200

Ile Val Glu His Asn Trp Phe Glu Thr Phe Ile Val Phe Met Ile  
1205 1210 1215

Leu Leu Ser Ser Gly Ala Leu Ala Phe Glu Asp Ile Tyr Ile Glu  
1220 1225 1230

Gln Arg Lys Thr Ile Lys Thr Met Leu Glu Tyr Ala Asp Lys Val  
1235 1240 1245

Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu Lys Trp Val Ala  
1250 1255 1260

Tyr Gly Phe Gln Val Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp  
1265 1270 1275

Phe Leu Ile Val Asp Val Ser Leu Val Ser Leu Thr Ala Asn Ala  
1280 1285 1290

Leu Gly Tyr Ser Glu Leu Gly Ala Ile Lys Ser Leu Arg Thr Leu  
1295 1300 1305

Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met  
1310 1315 1320

Arg Ala Val Val Asn Ala Leu Leu Gly Ala Ile Pro Ser Ile Met  
1325 1330 1335

Asn Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile  
1340 1345 1350

Met Gly Val Asn Leu Phe Ala Gly Lys Phe Tyr His Cys Ile Asn  
1355 1360 1365

Tyr Thr Thr Gly Glu Met Phe Asp Val Ser Val Val Asn Asn Tyr  
1370 1375 1380

Ser Glu Cys Lys Ala Leu Ile Glu Ser Asn Gln Thr Ala Arg Trp  
1385 1390 1395

Lys Asn Val Lys Val Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu  
1400 1405 1410

Ser Leu Leu Gln Val Ala Thr Phe Lys Gly Trp Met Asp Ile Met  
1415 1420 1425

Tyr Ala Ala Val Asp Ser Arg Asn Val Glu Leu Gln Pro Lys Tyr  
1430 1435 1440

Glu Asp Asn Leu Tyr Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile  
1445 1450 1455

Phe Gly Ser Phe Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile  
1460 1465 1470

Asp Asn Phe Asn Gln Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile  
1475 1480 1485

Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys  
1490 1495 1500

Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg Pro Ala Asn  
1505 1510 1515

Lys Phe Gln Gly Met Val Phe Asp Phe Val Thr Lys Gln Val Phe  
1520 1525 1530

Asp Ile Ser Ile Met Ile Leu Ile Cys Leu Asn Met Val Thr Met  
1535 1540 1545

Met Val Glu Thr Asp Asp Gln Ser Gln Glu Met Thr Asn Ile Leu  
1550 1555 1560

Tyr Trp Ile Asn Leu Val Phe Ile Val Leu Phe Thr Gly Glu Cys  
1565 1570 1575

Val Leu Lys Leu Ile Ser Leu Arg Tyr Tyr Tyr Phe Thr Ile Gly  
1580 1585 1590

Trp Asn Ile Phe Asp Phe Val Val Val Ile Leu Ser Ile Val Gly  
1595 1600 1605

Met Phe Leu Ala Glu Leu Ile Glu Lys Tyr Phe Val Ser Pro Thr  
1610 1615 1620

Leu Phe Arg Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg  
1625 1630 1635

Leu Ile Lys Gly Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu  
1640 1645 1650

Met Met Ser Leu Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe  
1655 1660 1665

Leu Val Met Phe Ile Tyr Ala Ile Phe Gly Met Ser Asn Phe Ala  
1670 1675 1680

Tyr Val Lys Arg Glu Val Gly Ile Asp Asp Met Phe Asn Phe Glu  
1685 1690 1695

Thr Phe Gly Asn Ser Met Ile Cys Leu Phe Gln Ile Thr Thr Ser  
1700 1705 1710

Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile Leu Asn Ser Gly Pro  
1715 1720 1725

Pro Asp Cys Asp Pro Asp Lys Asp His Pro Gly Ser Ser Val Lys  
1730 1735 1740

Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Phe Phe Val Ser  
1745 1750 1755

Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr Ile Ala  
1760 1765 1770

Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Ala Glu  
1775 1780 1785

Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu  
1790 1795 1800

Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ala Lys Leu

1805	1810	1815
Ser Asp Phe Ala Asp Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys		
1820	1825	1830
Pro Asn Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser		
1835	1840	1845
Gly Asp Arg Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys		
1850	1855	1860
Arg Val Leu Gly Glu Ser Gly Glu Met Asp Ala Leu Arg Ile Gln		
1865	1870	1875
Met Glu Glu Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr		
1880	1885	1890
Glu Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser		
1895	1900	1905
Ala Ile Ile Ile Gln Arg Ala Tyr Arg Arg Tyr Leu Leu Lys Gln		
1910	1915	1920
Lys Val Lys Lys Val Ser Ser Ile Tyr Lys Lys Asp Lys Gly Lys		
1925	1930	1935
Glu Cys Asp Gly Thr Pro Ile Lys Glu Asp Thr Leu Ile Asp Lys		
1940	1945	1950
Leu Asn Glu Asn Ser Thr Pro Glu Lys Thr Asp Met Thr Pro Ser		
1955	1960	1965
Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys Pro Glu Lys		
1970	1975	1980
Glu Lys Phe Glu Lys Asp Lys Ser Glu Lys Glu Asp Lys Gly Lys		
1985	1990	1995
Asp Ile Arg Glu Ser Lys Lys		
2000	2005	

<210> 37  
 <211> 912

<212> DNA  
<213> Homo sapiens

<400> 37  
gaattcttta tatgggttga atgactttct gacatagcaa ataaaaagca tgaggagaag 60  
cattatctgt taacaaaatt aacacttaaa atcaacaaag ttttaatgtt tcgttccaag 120  
aaaagcctgt ggaagatcag ttccacaact gagagctttg ggctgcttca gacatatgtc 180  
tgtgtgtacg ctgtgaaggt gtttctcttc acagttcccc gccctctagt ggtagttaca 240  
ataatgccat tttgtagtcc ctgtacagga aatgcctctt cttacttcag ttaccagaat 300  
ccttttacag gaagttaggt gtggtctttg aaggagaatt aaaaaaaaaa aaaaaaaaaa 360  
aaaaaagatt tttttttttt taaagcatga tggaatttta gctgcagtct tcttggggcc 420  
agcttatcaa tcccaaactc tgggggtaaa agattctaca ggggtaatgt tttattattc 480  
ttattatgct tattctctgt gatgcttctc tacctttaca gtagtagaat ccttggggaa 540  
atctgcagag ggaccacttt cttttgaag ctgctggctg catgttttag catgtctctt 600  
ctattagaga atccaggcat ggcagtttcc tccccagtg tgcaaggacc atcttcatgc 660  
ctatgtctgt cgctaggcat gagggctctc aggaatgggt gaaaaaatg agggatgttt 720  
tggaggcact ataatactgg ggagggcagt ctgctagctg gtagctgaaa ggtcctgggt 780  
tacttcaaca ttttttttaa ataaaactgt gcagtagttt ttgttatttt agggttccct 840  
ctgttttattc tgggtgatgc tgcagaagtg aactgcataa cacatttcac tcttagaaat 900  
gcattccata ta 912

<210> 38  
<211> 722  
<212> DNA  
<213> Homo sapiens

<400> 38  
ctcagtgcac gtaactgaca caatcacctc tatctaattg tcatgcttct tacctctctg 60  
tctgtagcac tttcttatgc aaggagctaa acagtgatta aaggagcagg atgaaaagat 120  
ggcacagtca gtgctggtac cgccaggacc tgacagcttc cgcttcttta ccagggaatc 180  
ccttgctgct attgaacaac gcattgcaga agagaaagct aagagacca aacaggaacg 240  
caaggatgag gatgatgaaa atggcccaaa gccaaacagt gacttggaag cagsaaaatc 300  
tcttccattt atttatggag acattcctcc agagatgggtg tcagtgcccc tggaggatct 360  
ggacccttac tatatcaata agaaagtgag ttcttagtca agttgccttc actgcctatt 420

tactaattgg ttctgggcta gtcccagga tgatggtgaa gaaggctggc ctccttccct	480
ctgtctaaag tatcactaag atgctggatg ggcctgaccg tgtaatggac caatgatcct	540
agaagtcttt tggaagcact catttgaacc tgcatttgtg agacaggcag agaactggtg	600
aggcatcctc cagcgcggga attaaggaag gacaaaagcc tattcacctt cttgaataca	660
aattatatgc ttaaaccagt gtaaattgac cctgattccc taataatggt gagaagcaaa	720
aa	722

<210> 39  
 <211> 561  
 <212> DNA  
 <213> Homo sapiens

<400> 39	
cctatggcat tgatcacaaa ttttcttaat aatcctcatg tcatttatca aatttaggaa	60
agtttatagt gctcagaaaa aaaaagcatc tatcttcatg tcatatgatg gtaattatta	120
tgttatacac tattttacag ggcaatattt ataaataatg gttttacttt tctcttaaaa	180
tattcttaat atatattcta agttttgttt tatgtgttgt gttttctttt tcagacgttt	240
atagtattga ataaagggaa agcaatctct cgattcagtg ccaccctgc cctttacatt	300
ttaactccct tcaaccctat tagaaaatta gctattaaga ttttggtaca ttcatatcct	360
ttttcaaate gtcacttaat atgattttct tctttgacca agttattgag ctacacattt	420
tccaaaatat ctgtggttgg caatgttatg tgttctttct ttttctttcc ttttactcaa	480
tcgttagcat gttgcaaaat gagatcacag gtaagtgaat tactttcccc cgtcttctaa	540
gtgtttcttc tctacccaac t	561

<210> 40  
 <211> 510  
 <212> DNA  
 <213> Homo sapiens

<400> 40	
acctaaatag cctcaaaata gttgatggct tggcctgaag acaagatcta aatatgaggt	60
tgctgagtta tagaatggc aaaaaaagg gtcaataata gaataataag caacaaaata	120
atagtaagca ctaaagtttt aaacttcatg gtggtgaagg catggtagtg cataaaagta	180
agatttttcc attgaacttt gtcttccttg acgatattct actttattca atatgctcat	240
tatgtgcacg attcttacca actgtgtatt tatgaccatg agtaaccctc cagactggac	300
aaagaatgtg gagtaagtat aaatattttt caatattgac ctccttttat gtttcatatt	360

gtgcttttaa caccttgaga cctcctcaat ttctttaaca aatcatgcta gctactgtta 420  
accagaccct gattcaaatt catttctgtc actaaatgtc ttctaggaca aagcttgtag 480  
tgggctcact tagttgtgta aattactgca 510

<210> 41  
<211> 370  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (293)..(293)  
<223> n= a, c, t or g

<400> 41  
taagatatgt acttgtaaatt taaccactag atttttaatg tgagcttggc tattgtctct 60  
caggtatacc ttacaggaa ttatacttt tgaatcactt attaaaatac ttgcaagggg 120  
cttttgttta gaagatttca cttttttacg ggatccatgg aattggttgg atttcacagt 180  
cattactttt gcgtaagtat ctttaatacat ttctatcctt ggaagagtaa atcactgggtg 240  
ggagcctata ctatattttc cttggtggct tgccttgaca gaccaagcat ttntcttagt 300  
aatcatagtt ttcttccaat caaattatcc agtttggaga aattaggaac tatcatagta 360  
aattacatgg 370

<210> 42  
<211> 370  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (133)..(133)  
<223> n = a, c, t or g

<400> 42  
caattagcac tgtaaagtaa taaagtttcc caaataacag agattatgat tgatgacaat 60  
gccattttcc tcttaattgg gaaagctgat ggcgacactc atgaaattaa aaaggtcttg 120  
atgaaagacc aangaagacg tagatttccc taaattctga ataactctga tttaattcta 180  
caggtatgta acagaatttg taaacctagg caatgtttca gctcttcgaa ctttcagagt 240  
cttgagagct ttgaaaacta tttctgtaat tccaggtaag aagaaaatgg tataagggtgg 300



taggccccctt atatctccaa ctgtttcttg tgttctgtca ttgtgtttgt gtgtgaaccc 360  
cctattacag 370

<210> 43  
<211> 410  
<212> DNA  
<213> Homo sapiens

<400> 43  
gtaagaagaa aatgggtataa ggtggtaggc cccttatatc tccaactgtt tcttgtgttc 60  
tgtcattgtg tttgtgtgtg aacccccctat tacagatatg tgacagagtt tgtggacctg 120  
ggcaatgtct cagcgttgag aacattcaga gttctccgag cattgaaaac aatttcagtc 180  
attccaggtg agagctaggt taaacaccga ggctgacttt agctacagtg gtgctacaat 240  
cacagctttt gtgcagaagc cttgttgcta gttgcatatt gcaaataaat atgtaaaaaa 300  
gcaagaattg gtacatcatt ttttggatgg atttgattct ttgcttttta cccgttgctt 360  
tctttaaaac tattctaaat cagcctttga gtttaacaag tgttgcata 410

<210> 44  
<211> 1066  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (229)..(229)  
<223> n = a, c, t or g

<400> 44  
aaagagtgtt tggaaataca catttggttc atttccattc acagttttct aatgaacata 60  
caagttctgc tttcattcat tttcaccagc tagtaggctt ttcataaaaa tgttattcaa 120  
tcacaaacat taaactaata ttggtggcat tctgcatgac atttttattt tccaggccaa 180  
gtcattgata tttttgccgg taaaatagct gttgagtagt atatttaant tcccccttct 240  
gattttgttt gtaggcctga agaccattgt gggggccctg atccagtcag tgaagaagct 300  
ttctgatgtc atgatcttga ctgtgttctg tctaagcgtg tttgcgctaa taggattgca 360  
gttgttcatg ggcaacctac gaaataaatg tttgcaatgg cctccagata attcttcctt 420  
tgaaataaat atcacttcct tctttaacaa ttcattggat ggggaatggta ctactttcaa 480  
taggacagtg agcatattta actgggatga atatattgag gataaaaagta agatatactc 540  
tataaaccat taagttgttt agttctctaa atattaaata ttatatataa tggaaattat 600

ctcaatttag atgtgaatca agtgacttag actaatttaa gatgatttaa tacatataaa	660
agagatatca aaggatacct tattctatctt ttsttatctg tccattgata tagtaaaagt	720
tctcatttga aaatgtgttg tcttatactc atgttgaaag taatttcata ttatgccata	780
ttaaaaaagg tttatttggg agacattaat cagggttttc agtcatttta ataaataagt	840
cagtagtttg aactattcmg cgtattccac tgaaatgtcg ttaagaagac tgaggggaaa	900
taatttggcc ctatttgggt gatgcaacat atgtattgag tacatatgct atatctgaaa	960
ctagagaaac catttatcaa gatgaaataa gaatttgtgt gctcctcaga aggttaagta	1020
accctgattt agccattcac ttcattcata ttctaattag tccctt	1066

<210> 45  
 <211> 385  
 <212> DNA  
 <213> Homo sapiens

<400> 45	
gttcaattat tgtgaaaaat cttcttttagc catatatatt tattagttaa tccatctcat	60
tatgattgaa aacatttgtg agctttgccca cctaaacagg gtggctgaag tgttttacag	120
gattttaatg attctttcta ttcctttctc tttaaataagg tcacttttat tttttacagg	180
ggcaaaatga tgctctgctt tgtggcaaca gctcagatgc agggtaagtg tatgcttctt	240
actgagtttc agtccacact gctccatcag tgtcaataac ctgccacctc ccactcatcc	300
agtcccacca ctctcactc aaaaccctcc ataaattcta cttcacggtg actctcagaa	360
tgaccaggat aagtgtagat tctca	385

<210> 46  
 <211> 430  
 <212> DNA  
 <213> Homo sapiens

<400> 46	
tataataatg acaattatga atcacagagg aatccacaaa gtagacctta tagattctgt	60
cattatataa atcagtcacac ttagtgctga gttaagtact gggtaagggtg agagaaatcg	120
gcttttttct agtgccctgta taaaacagac attggcatat attaaaacag gaaaaccaat	180
tagcagactt gccgttattg actycctctc tttcctctaa cctaattaca gccagtgtcc	240
tgaaggatac atctgtgtga aggctggtag aaaccccaac tatggctaca cgagctttga	300
cacctttagt tgggcctttt tgccttatt tcgtctcatg actcaagact tctgggaaaa	360

cctttatcaa ctggtgagaa cagataaaaat catttttctg agaatcataa aacaccgaac 420  
tcaagagaat 430

<210> 47  
<211> 646  
<212> DNA  
<213> Homo sapiens

<400> 47  
tgctgtagaa tattttatta cttagagtgt aagtttgtaa catcctatat aaaatttatt 60  
aaaatctctc ttccattttg cagacactac gtgctgctgg gaaaacgtac atgatatttt 120  
ttgtgctggg cattttcttg ggctcattct atctaataaa ttgatcttg gctgtggtgg 180  
ccatggccta tgaggaacag aatcaggcca cattggaaga ggctgaacag aaggaagctg 240  
aatttcagca gatgctcgaa cagttgaaaa agcaacaaga agaagctcag gtatagttaa 300  
caagcatacg gtcctttgtt tttctgtatc taaattcttt aacctaaatg ttgaggtcag 360  
tggcaaggta gttgacatta gaaataggtc atatgtgttt ggtaagtgtc aggagcctgt 420  
ttggttatta agaagttatt actttattgc aatgatctct gtcaatagtg tcaatagtaa 480  
tggcatcaaa aaatggataa ttataattgc tttactgaca tttttttctc cttgtgact 540  
ccttgaggaa attaattgatt aacaaaggcc tcatgtactc aaacttgcag agtagataaa 600  
cctacatgtc ctcagttgaa gtattttctt aggggaagag gaattc 646

<210> 48  
<211> 711  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (164)..(164)  
<223> n = a, c, t or g

<400> 48  
tatgtatcat cttccatatg aatgogcatt ttactctttg attggtctaa taacagtgtg 60  
ctgtgttcta aaacacagaa taaaatggag aattgttttt caagattatc ttcatgatat 120  
tgaagctcaa ttaagcagta acatgataat tattttttta gatnatatgc aacttcccac 180  
atactttgcg cccttctagg cggcagctgc agccgcatct gctgaatcaa gagacttcag 240  
tgggtgctggg gggataggag ttttttcaga gagttcttca gtagcatcta agttgagctc 300  
caaaagttaa aaagagctga aaaacagaag aaagaaaaag aaacagaaag aacagtctgg 360

agaagaagag aaaaatgaca gagtcctaaa atcggaatct gaagacagca taagaagaaa 420  
 aggtttccgt ttttccttgg aaggaagtag gctgacatat gaaaagagat tttcttctcc 480  
 acaccaggta aaaatattaa attacatgaa ttgtgttctc ataaattttt taaaagaata 540  
 tgccagaatt taatggagag aaaaccgcct tccacctgga tggcacaatg ctttcagagt 600  
 agtgatgatt atcaagtgtt ttggctatca cttcagagaa tttgtgagtt ttgcaacttt 660  
 ttggaatccc aggaaggaaa ttttagatcc ctctgggttt ggaaaaattt g 711

<210> 49

<211> 1026

<212> DNA

<213> Homo sapiens

<400> 49

ttatggggac acttctgact atgttgaggt gtgggttaaag taggagaaaa gagagcagaa 60  
 gatggaaaat ggaggaagga gaaaaagcga gagtgaata gaaaaggatga accttgtaga 120  
 aagtgcmeta atgccaccag cagtcacacag aggggtgctt tcttcacat gtccaatgac 180  
 ttatccttga gtaagtcaat gactatgaca caatgaatca aattctgttt ttcagaatgc 240  
 cagctcttaa ctctcttcat ctcatTTTTTg tttcttttct tgttattcat agtccttact 300  
 gagcatccgt ggctcccttt tctctccaag acgcaacagt agggcgagcc ttttcagctt 360  
 cagaggtcga gcaaaggaca ttggctctga gaatgacttt gctgatgatg agcacagcac 420  
 ctttgaggac aatgacagcc gaagagactc tctgttcgtg ccgcacagac atggagaacg 480  
 gcgccacagc aatgtcagcc aggccagccg tgctctcagg gtgctcccca tcttgcccat 540  
 gaatgggaag atgcatagcg ctgtggactg caatgggtgtg gtctccctgg tcggggggccc 600  
 ttctaccctc acatctgctg ggcagctcct accagagggtg aggccaaacyy magattgcag 660  
 ctgatgtgaa gagagtgtgt actggtgcag gcaggagtgy ttttccattt mcacatctaa 720  
 gaatttkttg agtttsttgc ccaaaggctg ggagtttggt caatcaagct gttaactgtc 780  
 ttgtgaaact sttctattca gacttitycta caaagtaatt aaaaacctag gttggctgtc 840  
 agagaatata attagamgtm atctttcatc ayyattacta tggatgaaa ctgcgcaaaa 900  
 agcaaagcaa caatttatca agcataatgt tygaytaata tagttaaat aaatccaagg 960  
 aaattaatgc tcacaaatta aataaatact taaggatttt gtgattgttg ttcatttaaa 1020  
 aggaga 1026

<210> 50  
 <211> 601  
 <212> DNA  
 <213> Homo sapiens

<400> 50  
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 taaacaaccc ccaaataatt atcattccaa caatatctta gtgagctttt tacatctgag 120  
 aaagcatggg gtatatattag ttaaataaca cctggtgtag gaatgctttg ggctttgctg 180  
 ctttcaaaaa tagtggttat ttcattctgaa attctacttc tagggcacia ctactgaaac 240  
 agaaataaga aagagacggg ccagttctta tcatgtttcc atggatttat tggaagatcc 300  
 tacatcaagg caaagagcaa tgagtatagc cagtattttg accaacacca tggaaggatc 360  
 gttaaaagtc ctgcgtcaca gttacttggg gctttcctaa tgatgaaaaa cacttcataa 420  
 atttcaataa aatacttctt gacttgatat tgtatcatta ttacacattt tactaaataa 480  
 cagtaaaatc cgtgcataac tcatggattc atatattcca cagatttttt ttttttatat 540  
 ttagcctgta gaaagctgct gcaaagttaa ggtatatttg aacaccactt tcataactta 600  
 a 601

<210> 51  
 <211> 645  
 <212> DNA  
 <213> Homo sapiens

<400> 51  
 gcttactagc ctttctgtac tgatcctttc tatgacagca aaccattgtt aaaattttcc 60  
 ctgttctctc agcagattaa ccataatat cttttaacaa ctttagattt tttaaattcc 120  
 ttttaattta aaccaaattc gcttaataga aagtaagcag ttttcatgag gattctaact 180  
 ttttttcttc cagaacttga agaattcaga cagaaatgcc caccatgctg gtataaattt 240  
 gctaatatgt gtttgatttg ggactgttgt aaaccatggg taaaggtgaa acaccttgct 300  
 aacctgggtg taatggacct atttggtgac ctggccatca ccatctgcat tgtcttaaat 360  
 acactcttca tggctatgga gcactatccc atgacggagc agttcagcag tgtactgtct 420  
 gttggaaacc tggttaagcct cactgagagt ttctcttctt cttgaaagag ttataaattg 480  
 ccttagtgaa ttttacatat tgcctcctaa ttaaatatca actaattggc catgtatatc 540  
 ttgacatcaa atgttttagca tcccttttaa ataacaaaaa aatgttgcta ccatagtgca 600  
 aaagagtcaa agaatttatg tacaatttga tttagaattg aattt 645

<210> 52  
 <211> 485  
 <212> DNA  
 <213> Homo sapiens

<400> 52  
 tggcccaaac caatttttaa atcaggaatt taatttwtat attggtggga gttaaattaa 60  
 gttgctcaat aattattcgt gtttcaakas tatttgctca tataatgaac tacacttctc 120  
 atttaggtct tcacagggat cttcacagca gaaatgttcc tcaagataat tgccatggat 180  
 ccatattatt actttcaaga aggctggaat atttttgatg gttttattgt gagccttagt 240  
 ttaatggaac ttggtttggc aaatgtggaa ggattgtcag ttctccgatc attccggctg 300  
 gtaaattaac tgggagtgtt cataaaatgt acttttrtaat taattagtct tcattctcat 360  
 ctagtaaaaa tggcaagatt tcccatcatt ataatatatt tgaatacctt ctaaaacaga 420  
 ttggattgcc ataccaccaa atggtagttt cttcttcac atagctttaa taaagttcac 480  
 ttaaa 485

<210> 53  
 <211> 602  
 <212> DNA  
 <213> Homo sapiens

<400> 53  
 acagatttcc tcctgtgtcc atgtgactaa cccattgtgc acatgtaccc taaaaattag 60  
 tatataataa taaaataaaa taaaaataaa aataaaaaaa taaaaataaa ataaaattgc 120  
 agattttttt agaaatgcag agattaacac tggtcttgct tttatttcca gctccgagtt 180  
 ttcaagttgg caaaatcttg gccaaactcta aatatgctaa ttaagatcat tggcaattct 240  
 gtgggggctc taggaaacct caccttggtg ttggccatca tcgtcttcat ttttgtgtgtg 300  
 gtcggcatgc agctcttttg taagagctac aaagaatgtg tctgcaagat ttccaatgat 360  
 tgtgaactcc cacgctggca catgcatgac tttttccact ccttcttgat cgtgttccgc 420  
 gtgctgtgtg gagagtggat agagaccatg tgggactgta tggaggctgc tggccaaacc 480  
 atgtgcctta ctgtcttcat gatggctcat gtgattggaa atctagtgg atgtagcaaa 540  
 aacattttcc tcattttcat taaaaataat gtaatcatta aaaagtgttc aactgaagaa 600  
 ta 602

<210> 54  
 <211> 803

<212> DNA  
<213> Homo sapiens

<400> 54  
gtttcattta gcaatgattt cagtattttc tgcaatgact aataagcaaa tagtgataat 60  
agtattattt tatattgacc aagcattttt atttcattca ctttttttca gaatagtgtgta 120  
tcatgaatta gcagaaatgc atgttagaat aaaataaggt gtcaagaaca atcttagaaa 180  
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gtttcaggtt ctgaacctct tcttggcctt gcttttgagt tccttcagtt ctgacaatct 300  
tgctgccact gatgatgata acgaaatgaa taatctccag attgctgtgg gaaggatgca 360  
gaaaggaatc gattttgtta aaagaaaaat acgtgaattt attcagaaag cttttgttag 420  
gaagcagaaa gcttttagatg aaattaaacc gcttgaagat ctaaataata aaaaagacag 480  
ctgtatttcc aaccatacca ccatagaaat aggcaaagac ctcaattatc tcaaagacgg 540  
aatggaact actagtggca taggcagcag tgtagaaaaa tatgtcgtgg atgaaagtga 600  
ttacatgtca ttataaaca accctagcct cactgtgaca gtaccaattg ctgttgagaga 660  
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aggtgtttta tgcgtgtctc tgt 803

<210> 55  
<211> 615  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (90)..(90)  
<223> n = a, c, t or g

<220>  
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<222> (378)..(386)  
<223> n = a, c, t or g

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tggcattatg tttaagttct taattacaga tcaagaaaaa tgcatacaga agatgggggg 180

gggcacacct aattaat tttt tatatttaga ttaaagaaaa taattaaatg tgtttttttg	240
tgggattgat tttcagaagc taaatgcaac tagttcatct gaaggcagca cggttgatat	300
tggagctccc gccgaggag aacagcctga ggttgaacct gaggaatccc ttgaacctga	360
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ctcttttcta cccatttttt cctattttatt taaatgtctg tttatttgtc taccatctag	480
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 <212> DNA  
 <213> Homo sapiens

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gtcttcattt ttttcccaca tatttttagac tgtgtacgga agttcaagtg ttgtcagata	180
agcatagaag aaggcaaagg gaaactctgg tggaatttga ggaaaacatg ctataagata	240
gtggagcaca attggttcga aaccttcatt gtcttcatga ttctgctgag cagtggggct	300
ctggtaggtg atgcatgac cactccttca cctttcatct gaaatctttt ccctttccct	360
tcaatcaact catattaccc actttttaa taaggtgttt	400

<210> 57  
 <211> 560  
 <212> DNA  
 <213> Homo sapiens

<400> 57	
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atgataaagt aaaattcagc catgggaaac attaaacctt ccagccttag gcacctgata	120
agagcttgca tcgtttcctt ttttaagaaa tcatcaatta gagactgttt ctgatcataa	180
aatttaatag aattttttga cttacaggcc tttgaagata tatacattga gcagcgaaaa	240
accattaaga ccatgttaga atatgctgac aaggttttca cttacatatt cattctggaa	300
atgetgctaa agtggggtgc atatggtttt caagtgtatt ttaccaatgc ctgggtgctgg	360
ctagacttcc tgattgttga tgtgagtatg ctgcactttg ctgctttatt cattggcata	420



tatgtaatag ttctagcaat ggtgcctgac acagtgtagg cactcagtaa cactgtatca	480
gccc aaatat aaattatggt tctcatttca cagtgagagg atgcctcaaa acatttttta	540
ccaattttaa tacatatata	560

<210> 58  
 <211> 480  
 <212> DNA  
 <213> Homo sapiens

<400> 58	
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gcaaggctga actgtgtaga cttttttata tgtaaataag aaaattgtgt tgctttttct	180
gtataggtct cactgggttag cttaactgca aatgccttg gttactcaga acttgggtgcc	240
atcaaatccc tcagaacact aagagctctg aggccactga gagctttgtc ccggtttgaa	300
ggaatgaggg taagactgaa tgccttagag tttgtcagaa ttattattga gagcagactg	360
acactttgta ccatggaaat gtcaaattta tggagaattt gtgtcttaca cattcatact	420
gacatagcta atcaatcaaa aataatattt accagatgcc cataatactt ggcactgctg	480

<210> 59  
 <211> 640  
 <212> DNA  
 <213> Homo sapiens

<400> 59	
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tttgttgttg gcttttctact ttttttctt tctcatctg tgccagggtg ttgtaaagtc	180
tcttttagga gccattccat ctatcatgaa tgtacttctg gtttgtctga tcttttggct	240
aatattcagt atcatgggag tgaatctctt tgctggcaag ttttaccatt gtattaatta	300
caccactgga gagatgtttg atgtaagcgt ggtcaacaac tacagtgagt gcaaagctct	360
cattgagagc aatcaaactg ccagggtggaa aaatgtgaaa gttaaactttg ataacgtagg	420
acttgatat ctgtctctac ttcaagtagt aagtaatcac tttattattt tccatgatgt	480
gtaattaaaa tgagtctaaa gtttttcttc ctcataatga gatatccacc tgttagaatg	540
gctattatca aacagataaa tgacaataaa tgctggcaag aatgtgaaga aaaggggaacc	600

cttgtagcatt gttggcaggg atgtaaatta gtatagcttt 640

<210> 60  
<211> 480  
<212> DNA  
<213> Homo sapiens

<400> 60  
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ttatttttcta aaattataat tttgggaaaa aagaaaatga tatgactttt cttacaggcc 180  
acgtttaagg gatggatgga tattatgtat gcagctgttg attcacgaaa tgtaagtcta 240  
gttagagggga aattgttttag tttgattaaa tgtatatttc tacaatattg taatttagtg 300  
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taaaatattt aatcatacta tttctttcaa aattatcata ggatgatttt ctctaatac 420  
tctgtatctt ttaacatatc ttttctagta tttagcaagg cacctgacac aaaactttat 480

<210> 61  
<211> 366  
<212> DNA  
<213> Homo sapiens

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cctgtacatg tatctttatt ttgtcatctt tattattttt gggtcattct ttaccttgaa 180  
tcttttcatt ggtgtcatca tagataactt caaccaacag aaaaagaaga taagtatatt 240  
aaaacttcat ccttgctctg aaatatgaac taaatatttc atactcttct ctttagcctc 300  
caaatgcaa tcaccaaaaa aagaatataa aattcagaaa ttattttgag acatttgata 360  
atcgat 366

<210> 62  
<211> 560  
<212> DNA  
<213> Homo sapiens

<400> 62  
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aaatatgact aatatggcat aatttatata ttgaataaag gcattctctat aaatacagat 120

attagtaaca atagaatgaa atgtgggagc caattttcac atgattacta aggtggattt	180
tatagccagc aaagaacaca attttaacaa gtgttgcttt catttcttta ctttggaggt	240
caagacattt ttatgacaga agaacagaag aaatactaca atgcaatgaa aaaactgggt	300
tcaaagaaac cacaaaaacc catacctcga cctgctgtaa gaataacata ttttcattgc	360
ctgttaaaac tatattacct aaccgtttca cagcccgaat ttctagaaac tagttatttt	420
tgtggatttg taacacaaag ttttttacct taacaatggg actagctagc ctaaatagct	480
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atgtaaacat ataaaataca	560

<210> 63  
 <211> 650  
 <212> DNA  
 <213> Homo sapiens

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gttttctaag gaacttttac atattatttg ttccagaaca aattccaagg aatggctctt	180
gattttgtaa ccaaacaagt ctttgatata agcatcatga tcctcatctg ccttaacatg	240
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attaatctgg tgtttattgt tctgttcaact ggagaatgtg tgctgaaact gatctctctt	360
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<210> 64  
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 <212> DNA  
 <213> Homo sapiens

<400> 64	
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actttcattt gctactatta agtataacaa tatttttgtt atttggtgat tttctacagg	180

aatgtttctg gctgaactga tagaaaagta ttttgtgtcc cctaccctgt tccgagtgat	240
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gctgctcttt gctttgatga tgtcccttcc tgcgttgttt aacatcggcc tccttctttt	360
cctggtcacg ttcacctacg ccatctttgg gatgtccaat tttgcctatg ttaagagggg	420
agttgggacg gatgacatgt tcaactttga gacctttggc aacagcatga tctgcctggt	480
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 <212> DNA  
 <213> Homo sapiens

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aatctaataa	atccattcta	gaaaaatata	tctaaagtat	tgcttttagaa	tagttgttcc	7320
actttctgct	gcagtattgc	tttgccatct	tctgctctca	gcaaagctga	tagtctatgt	7380
caattaaata	ccctatgtta	tgtaaatagt	tattttatcc	tgtgggtgat	gtttgggcaa	7440

atatatatat agcctgataa acaacttcta ttaaatacaa tatgtaccac agtgtatgtg	7500
tcttttgcaa gcttccaaca gggatgtatc ctgtatcatt cattaaacat agtttaaagg	7560
ctatcactaa tgcattgttaa tattgcctat gctgctctat tttactcaat ccattcttca	7620
caagtcttgg ttaaagaatg tcacatattg gtgatagaat gaattcaacc tgctctgtcc	7680
attatgtcaa gcagaataat ttgaagctat ttacaaacac ctttactttt gcacttttaa	7740
ttcaacatga gtatcatatg gtatctctct agatttcaag gaaacacact ggatactgcc	7800
tactgacaaa acctattctt catattttgc taaaaatag tctaaaactt gcgcaaatat	7860
aaataatgta aaaatataat caactttatt tgtcagcatt ttgtacataa gaaaattatt	7920
ttcaggttga tgacatcaca atttatttta ctttatgctt ttgcttttga tttttaatca	7980
caattccaaa cttttgaatc cataagattt ttcaatggat aatttcctaa aataaaagtt	8040
agataatggg ttttatggat ttctttgtta taatatattt tctaccattc caataggaga	8100
tacattggtc aaacactcaa acctagatca ttttctacca actatgggtg cctcaatata	8160
accttttatt catagatggt tttttttatt caacttttgt agtatttacg tatgcagact	8220
agtcttattt ttttaattcc tgctgcacta aagctattac aaatataaca tggactttgt	8280
tcttttttagc catgaacaaa gtggcaaagt tgtgcaatta cctaacaatga tataaatttt	8340
tgttttttgc acaaaccaaa agtttaatgt taattctttt tacaaaacta tttactgtag	8400
tgtattgaag aactgcatgc aggggaattgc tattgctaaa aagaatgggtg agctacgtca	8460
ttattgagcc aaaagaataa atttcatttt ttattgcatt tcacttattg gcctctgggg	8520
ttttttgttt ttgttttttg ctgttggcag tttaaaatat atataattaa taaaacctgt	8580
gcttgatctg acatttgtat acataaaagt ttacatgaat ttacaacag actagtgcatt	8640
gattcaccaa gcagtactac agaacaaagg caaatgaaaa gcagctttgt gcacttttat	8700
gtgtgcaaag gatcaagttc acatgttcca actttcaggt ttgataataa tagtagtaac	8760
cacctacaat agctttcaat ttcaattaac tcccttggct ataagcatct aaactcatct	8820
tctttcaata taattgatgc tatctcctaa ttacttggtg gctaataaat gttacattct	8880
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attgagaatt tatattaact tttttttcaa gaacccttg atttatgtga ggtcaaaacc	9000
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tctaaaatag tatttcataa ttctcccata ataaattata taagggtggct aa	9112



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<211> 1951  
<212> PRT  
<213> Homo sapiens

<220>  
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<222> (122)..(122)  
<223> Xaa = any amino acid

<400> 67

Met Ala Gln Ala Leu Leu Val Pro Pro Gly Pro Glu Ser Phe Arg Leu  
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Phe Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Ala Ala Glu Glu  
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Lys Ala Lys Lys Pro Lys Lys Glu Gln Asp Asn Asp Asp Glu Asn Lys  
35 40 45

Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile  
50 55 60

Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu  
65 70 75 80

Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Met Asn Lys Gly  
85 90 95

Lys Ala Ile Ser Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr  
100 105 110

Pro Leu Asn Pro Val Arg Lys Ile Ala Xaa Lys Ile Leu Val His Ser  
115 120 125

Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe  
130 135 140

Met Thr Leu Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr  
145 150 155 160

Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala Arg  
165 170 175

Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp  
180 185 190

Leu Asp Phe Ser Val Ile Val Met Ala Tyr Val Thr Glu Phe Val Asp  
195 200 205

Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu  
210 215 220

Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu  
225 230 235 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe  
245 250 255

Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn  
260 265 270

Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Ser Asp Ser Ala Phe Glu  
275 280 285

Thr Asn Thr Thr Ser Tyr Phe Asn Gly Thr Met Asp Ser Asn Gly Thr  
290 295 300

Phe Val Asn Val Thr Met Ser Thr Phe Asn Trp Lys Asp Tyr Ile Gly  
305 310 315 320

Asp Asp Ser His Phe Tyr Val Leu Asp Gly Gln Lys Asp Pro Leu Leu  
325 330 335

Cys Gly Asn Gly Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile Cys  
340 345 350

Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr  
355 360 365

Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Tyr  
370 375 380

Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr  
385 390 395 400

Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu Val  
405 410 415

Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Gly Gln Asn Gln  
420 425 430

Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met  
435 440 445

Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Val Ala Ala  
450 455 460

Ala Ser Ala Ala Ser Arg Asp Phe Ser Gly Ile Gly Gly Leu Gly Glu  
465 470 475 480

Leu Leu Glu Ser Ser Ser Glu Ala Ser Lys Leu Ser Ser Lys Ser Ala  
485 490 495

Lys Glu Trp Arg Asn Arg Arg Lys Lys Arg Arg Gln Arg Glu His Leu  
500 505 510

Glu Gly Asn Asn Lys Gly Glu Arg Asp Ser Phe Pro Lys Ser Glu Ser  
515 520 525

Glu Asp Ser Val Lys Arg Ser Ser Phe Leu Phe Ser Met Asp Gly Asn  
530 535 540

Arg Leu Thr Ser Asp Lys Lys Phe Cys Ser Pro His Gln Ser Leu Leu  
545 550 555 560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Lys Thr Ser  
565 570 575

Ile Phe Ser Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp  
580 585 590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Ser Glu Ser Arg Arg  
595 600 605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg Asn Ser Asn  
610 615 620

Gly Thr Thr Thr Glu Thr Glu Val Arg Lys Arg Arg Leu Ser Ser Tyr

625		630		635		640
Gln Ile Ser Met Glu Met Leu Glu Asp Ser Ser Gly Arg Gln Arg Ala						
	645		650			655
Val Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu						
	660		665			670
Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Arg Phe Ala Asn Val Phe						
	675		680			685
Leu Ile Trp Asp Cys Cys Asp Ala Trp Leu Lys Val Lys His Leu Val						
	690		695			700
Asn Leu Ile Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys						
705		710		715		720
Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr						
	725		730			735
Glu Gln Phe Ser Ser Val Leu Thr Val Gly Asn Leu Val Phe Thr Gly						
	740		745			750
Ile Phe Thr Ala Glu Met Val Leu Lys Ile Ile Ala Met Asp Pro Tyr						
	755		760			765
Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Ile Ile Val Ser						
	770		775			780
Leu Ser Leu Met Glu Leu Gly Leu Ser Asn Val Glu Gly Leu Ser Val						
785		790		795		800
Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp						
	805		810			815
Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala						
	820		825			830
Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala						
	835		840			845
Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys						
	850		855			860

Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg Trp His Met Asn Asp Phe  
865 870 875 880

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile  
885 890 895

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu  
900 905 910

Ile Val Phe Met Leu Val Met Val Ile Gly Asn Leu Val Val Leu Asn  
915 920 925

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala  
930 935 940

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly  
945 950 955 960

Arg Met Gln Lys Gly Ile Asp Tyr Val Lys Asn Lys Met Arg Glu Cys  
965 970 975

Phe Gln Lys Ala Phe Phe Arg Lys Pro Lys Val Ile Glu Ile His Glu  
980 985 990

Gly Asn Lys Ile Asp Ser Cys Met Ser Asn Asn Thr Gly Ile Glu Ile  
995 1000 1005

Ser Lys Glu Leu Asn Tyr Leu Arg Asp Gly Asn Gly Thr Thr Ser  
1010 1015 1020

Gly Val Gly Thr Gly Ser Ser Val Glu Lys Tyr Val Ile Asp Glu  
1025 1030 1035

Asn Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val Thr  
1040 1045 1050

Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn Thr  
1055 1060 1065

Glu Glu Phe Ser Ser Glu Ser Glu Leu Glu Glu Ser Lys Glu Lys  
1070 1075 1080

Leu Asn Ala Thr Ser Ser Ser Glu Gly Ser Thr Val Asp Val Val  
1085 1090 1095

Leu Pro Arg Glu Gly Glu Gln Ala Glu Thr Glu Pro Glu Glu Asp  
1100 1105 1110

Leu Lys Pro Glu Ala Cys Phe Thr Glu Gly Cys Ile Lys Lys Phe  
1115 1120 1125

Pro Phe Cys Gln Val Ser Thr Glu Glu Gly Lys Gly Lys Ile Trp  
1130 1135 1140

Trp Asn Leu Arg Lys Thr Cys Tyr Ser Ile Val Glu His Asn Trp  
1145 1150 1155

Phe Glu Thr Phe Ile Val Phe Met Ile Leu Leu Ser Ser Gly Ala  
1160 1165 1170

Leu Ala Phe Glu Asp Ile Tyr Ile Glu Gln Arg Lys Thr Ile Lys  
1175 1180 1185

Thr Met Leu Glu Tyr Ala Asp Lys Val Phe Thr Tyr Ile Phe Ile  
1190 1195 1200

Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe Gln Thr Tyr  
1205 1210 1215

Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val Asp Val  
1220 1225 1230

Ser Leu Val Ser Leu Val Ala Asn Ala Leu Gly Tyr Ser Glu Leu  
1235 1240 1245

Gly Ala Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg Pro Leu  
1250 1255 1260

Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val Asn Ala  
1265 1270 1275

Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu Val Cys  
1280 1285 1290

Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu Phe  
1295 1300 1305

Ala Gly Lys Phe Tyr His Cys Val Asn Met Thr Thr Gly Asn Met  
1310 1315 1320

Phe Asp Ile Ser Asp Val Asn Asn Leu Ser Asp Cys Gln Ala Leu  
1325 1330 1335

Gly Lys Gln Ala Arg Trp Lys Asn Val Lys Val Asn Phe Asp Asn  
1340 1345 1350

Val Gly Ala Gly Tyr Leu Ala Leu Leu Gln Val Ala Thr Phe Lys  
1355 1360 1365

Gly Trp Met Asp Ile Met Tyr Ala Ala Val Asp Ser Arg Asp Val  
1370 1375 1380

Lys Leu Gln Pro Val Tyr Glu Glu Asn Leu Tyr Met Tyr Leu Tyr  
1385 1390 1395

Phe Val Ile Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu  
1400 1405 1410

Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys  
1415 1420 1425

Phe Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr  
1430 1435 1440

Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro  
1445 1450 1455

Ile Pro Arg Pro Ala Asn Lys Phe Gln Gly Met Val Phe Asp Phe  
1460 1465 1470

Val Thr Arg Gln Val Phe Asp Ile Ser Ile Met Ile Leu Ile Cys  
1475 1480 1485

Leu Asn Met Val Thr Met Met Val Glu Thr Asp Asp Gln Gly Lys  
1490 1495 1500

Tyr Met Thr Leu Val Leu Ser Arg Ile Asn Leu Val Phe Ile Val

1505	1510	1515
Leu Phe Thr Gly Glu Phe Val	Leu Lys Leu Val Ser	Leu Arg His
1520	1525	1530
Tyr Tyr Phe Thr Ile Gly Trp	Asn Ile Phe Asp Phe	Val Val Val
1535	1540	1545
Ile Leu Ser Ile Val Gly Met	Phe Leu Ala Glu Met	Ile Glu Lys
1550	1555	1560
Tyr Phe Val Ser Pro Thr Leu	Phe Arg Val Ile Arg	Leu Ala Arg
1565	1570	1575
Ile Gly Arg Ile Leu Arg Leu	Ile Lys Gly Ala Lys	Gly Ile Arg
1580	1585	1590
Thr Leu Leu Phe Ala Leu Met	Met Ser Leu Pro Ala	Leu Phe Asn
1595	1600	1605
Ile Gly Leu Leu Leu Phe Leu	Val Met Phe Ile Tyr	Ala Ile Phe
1610	1615	1620
Gly Met Ser Asn Phe Ala Tyr	Val Lys Lys Glu Ala	Gly Ile Asp
1625	1630	1635
Asp Met Phe Asn Phe Glu Thr	Phe Gly Asn Ser Met	Ile Cys Leu
1640	1645	1650
Phe Gln Ile Thr Thr Ser Ala	Gly Trp Asp Gly Leu	Leu Ala Pro
1655	1660	1665
Ile Leu Asn Ser Ala Pro Pro	Asp Cys Asp Pro Asp	Thr Ile His
1670	1675	1680
Pro Gly Ser Ser Val Lys Gly	Asp Cys Gly Asn Pro	Ser Val Gly
1685	1690	1695
Ile Phe Phe Phe Val Ser Tyr	Ile Ile Ile Ser Phe	Leu Val Val
1700	1705	1710
Val Asn Ser Tyr Ile Ala Val	Ile Leu Glu Asn Phe	Ser Val Ala
1715	1720	1725



Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu Asp Asp Phe Glu Met  
1730 1735 1740

Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp Ala Thr Gln Phe  
1745 1750 1755

Ile Glu Phe Ser Lys Leu Ser Asp Phe Ala Ala Ala Leu Asp Pro  
1760 1765 1770

Pro Leu Leu Ile Ala Lys Pro Asn Lys Val Gln Leu Ile Ala Met  
1775 1780 1785

Asp Leu Pro Met Val Ser Gly Asp Arg Ile His Cys Leu Asp Ile  
1790 1795 1800

Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu Ser Gly Glu Met  
1805 1810 1815

Asp Ala Leu Arg Ile Gln Met Glu Asp Arg Phe Met Ala Ser Asn  
1820 1825 1830

Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr Leu Lys Arg  
1835 1840 1845

Lys Gln Glu Glu Val Ser Ala Ala Ile Ile Gln Arg Asn Phe Arg  
1850 1855 1860

Cys Tyr Leu Leu Lys Gln Arg Leu Lys Asn Ile Ser Ser Asn Tyr  
1865 1870 1875

Asn Lys Glu Ala Ile Lys Gly Arg Ile Asp Leu Pro Ile Lys Gln  
1880 1885 1890

Asp Met Ile Ile Asp Lys Leu Asn Gly Asn Ser Thr Pro Glu Lys  
1895 1900 1905

Thr Asp Gly Ser Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser  
1910 1915 1920

Val Thr Lys Pro Asp Lys Glu Lys Phe Glu Lys Asp Lys Pro Glu  
1925 1930 1935

Lys Glu Ser Lys Gly Lys Glu Val Arg Glu Asn Gln Lys  
1940 1945 1950

<210> 68  
<211> 1951  
<212> PRT  
<213> Homo sapiens

<220>  
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<222> (122)..(122)  
<223> Xaa = any amino acid

<400> 68

Met Ala Gln Ala Leu Leu Val Pro Pro Gly Pro Glu Ser Phe Arg Leu  
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Phe Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Ala Ala Glu Glu  
20 25 30

Lys Ala Lys Lys Pro Lys Lys Glu Gln Asp Asn Asp Asp Glu Asn Lys  
35 40 45

Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile  
50 55 60

Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu  
65 70 75 80

Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Met Asn Lys Gly  
85 90 95

Lys Ala Ile Ser Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr  
100 105 110

Pro Leu Asn Pro Val Arg Lys Ile Ala Xaa Lys Ile Leu Val His Ser  
115 120 125

Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe  
130 135 140

Met Thr Leu Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr  
145 150 155 160

Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala Arg  
165 170 175

Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp  
180 185 190

Leu Asp Phe Ser Val Ile Val Met Ala Tyr Val Thr Glu Phe Val Ser  
195 200 205

Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu  
210 215 220

Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu  
225 230 235 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe  
245 250 255

Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn  
260 265 270

Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Ser Asp Ser Ala Phe Glu  
275 280 285

Thr Asn Thr Thr Ser Tyr Phe Asn Gly Thr Met Asp Ser Asn Gly Thr  
290 295 300

Phe Val Asn Val Thr Met Ser Thr Phe Asn Trp Lys Asp Tyr Ile Gly  
305 310 315 320

Asp Asp Ser His Phe Tyr Val Leu Asp Gly Gln Lys Asp Pro Leu Leu  
325 330 335

Cys Gly Asn Gly Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile Cys  
340 345 350

Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr  
355 360 365

Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Tyr  
370 375 380

Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr  
385 390 395 400

Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu Val  
405 410 415

Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Gly Gln Asn Gln  
420 425 430

Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met  
435 440 445

Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Val Ala Ala  
450 455 460

Ala Ser Ala Ala Ser Arg Asp Phe Ser Gly Ile Gly Gly Leu Gly Glu  
465 470 475 480

Leu Leu Glu Ser Ser Ser Glu Ala Ser Lys Leu Ser Ser Lys Ser Ala  
485 490 495

Lys Glu Trp Arg Asn Arg Arg Lys Lys Arg Arg Gln Arg Glu His Leu  
500 505 510

Glu Gly Asn Asn Lys Gly Glu Arg Asp Ser Phe Pro Lys Ser Glu Ser  
515 520 525

Glu Asp Ser Val Lys Arg Ser Ser Phe Leu Phe Ser Met Asp Gly Asn  
530 535 540

Arg Leu Thr Ser Asp Lys Lys Phe Cys Ser Pro His Gln Ser Leu Leu  
545 550 555 560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Lys Thr Ser  
565 570 575

Ile Phe Ser Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp  
580 585 590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Ser Glu Ser Arg Arg  
595 600 605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg Asn Ser Asn

610

615

620

Gly Thr Thr Thr Glu Thr Glu Val Arg Lys Arg Arg Leu Ser Ser Tyr  
625 630 635 640

Gln Ile Ser Met Glu Met Leu Glu Asp Ser Ser Gly Arg Gln Arg Ala  
645 650 655

Val Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu  
660 665 670

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Arg Phe Ala Asn Val Phe  
675 680 685

Leu Ile Trp Asp Cys Cys Asp Ala Trp Leu Lys Val Lys His Leu Val  
690 695 700

Asn Leu Ile Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys  
705 710 715 720

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr  
725 730 735

Glu Gln Phe Ser Ser Val Leu Thr Val Gly Asn Leu Val Phe Thr Gly  
740 745 750

Ile Phe Thr Ala Glu Met Val Leu Lys Ile Ile Ala Met Asp Pro Tyr  
755 760 765

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Ile Ile Val Ser  
770 775 780

Leu Ser Leu Met Glu Leu Gly Leu Ser Asn Val Glu Gly Leu Ser Val  
785 790 795 800

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp  
805 810 815

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala  
820 825 830

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala  
835 840 845

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys  
850 855 860

Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg Trp His Met Asn Asp Phe  
865 870 875 880

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile  
885 890 895

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu  
900 905 910

Ile Val Phe Met Leu Val Met Val Ile Gly Asn Leu Val Val Leu Asn  
915 920 925

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala  
930 935 940

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly  
945 950 955 960

Arg Met Gln Lys Gly Ile Asp Tyr Val Lys Asn Lys Met Arg Glu Cys  
965 970 975

Phe Gln Lys Ala Phe Phe Arg Lys Pro Lys Val Ile Glu Ile His Glu  
980 985 990

Gly Asn Lys Ile Asp Ser Cys Met Ser Asn Asn Thr Gly Ile Glu Ile  
995 1000 1005

Ser Lys Glu Leu Asn Tyr Leu Arg Asp Gly Asn Gly Thr Thr Ser  
1010 1015 1020

Gly Val Gly Thr Gly Ser Ser Val Glu Lys Tyr Val Ile Asp Glu  
1025 1030 1035

Asn Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val Thr  
1040 1045 1050

Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn Thr  
1055 1060 1065

Glu Glu Phe Ser Ser Glu Ser Glu Leu Glu Glu Ser Lys Glu Lys  
1070 1075 1080

Leu Asn Ala Thr Ser Ser Ser Glu Gly Ser Thr Val Asp Val Val  
1085 1090 1095

Leu Pro Arg Glu Gly Glu Gln Ala Glu Thr Glu Pro Glu Glu Asp  
1100 1105 1110

Leu Lys Pro Glu Ala Cys Phe Thr Glu Gly Cys Ile Lys Lys Phe  
1115 1120 1125

Pro Phe Cys Gln Val Ser Thr Glu Glu Gly Lys Gly Lys Ile Trp  
1130 1135 1140

Trp Asn Leu Arg Lys Thr Cys Tyr Ser Ile Val Glu His Asn Trp  
1145 1150 1155

Phe Glu Thr Phe Ile Val Phe Met Ile Leu Leu Ser Ser Gly Ala  
1160 1165 1170

Leu Ala Phe Glu Asp Ile Tyr Ile Glu Gln Arg Lys Thr Ile Lys  
1175 1180 1185

Thr Met Leu Glu Tyr Ala Asp Lys Val Phe Thr Tyr Ile Phe Ile  
1190 1195 1200

Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe Gln Thr Tyr  
1205 1210 1215

Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val Asp Val  
1220 1225 1230

Ser Leu Val Ser Leu Val Ala Asn Ala Leu Gly Tyr Ser Glu Leu  
1235 1240 1245

Gly Ala Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg Pro Leu  
1250 1255 1260

Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val Asn Ala  
1265 1270 1275

Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu Val Cys  
1280 1285 1290

Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu Phe  
1295 1300 1305

Ala Gly Lys Phe Tyr His Cys Val Asn Met Thr Thr Gly Asn Met  
1310 1315 1320

Phe Asp Ile Ser Asp Val Asn Asn Leu Ser Asp Cys Gln Ala Leu  
1325 1330 1335

Gly Lys Gln Ala Arg Trp Lys Asn Val Lys Val Asn Phe Asp Asn  
1340 1345 1350

Val Gly Ala Gly Tyr Leu Ala Leu Leu Gln Val Ala Thr Phe Lys  
1355 1360 1365

Gly Trp Met Asp Ile Met Tyr Ala Ala Val Asp Ser Arg Asp Val  
1370 1375 1380

Lys Leu Gln Pro Val Tyr Glu Glu Asn Leu Tyr Met Tyr Leu Tyr  
1385 1390 1395

Phe Val Ile Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu  
1400 1405 1410

Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys  
1415 1420 1425

Phe Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr  
1430 1435 1440

Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro  
1445 1450 1455

Ile Pro Arg Pro Ala Asn Lys Phe Gln Gly Met Val Phe Asp Phe  
1460 1465 1470

Val Thr Arg Gln Val Phe Asp Ile Ser Ile Met Ile Leu Ile Cys  
1475 1480 1485

Leu Asn Met Val Thr Met Met Val Glu Thr Asp Asp Gln Gly Lys



1490		1495		1500
Tyr Met Thr Leu Val Leu Ser Arg Ile Asn Leu Val Phe Ile Val				
1505		1510		1515
Leu Phe Thr Gly Glu Phe Val Leu Lys Leu Val Ser Leu Arg His				
1520		1525		1530
Tyr Tyr Phe Thr Ile Gly Trp Asn Ile Phe Asp Phe Val Val Val				
1535		1540		1545
Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu Met Ile Glu Lys				
1550		1555		1560
Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile Arg Leu Ala Arg				
1565		1570		1575
Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala Lys Gly Ile Arg				
1580		1585		1590
Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala Leu Phe Asn				
1595		1600		1605
Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala Ile Phe				
1610		1615		1620
Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Ala Gly Ile Asp				
1625		1630		1635
Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu				
1640		1645		1650
Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro				
1655		1660		1665
Ile Leu Asn Ser Ala Pro Pro Asp Cys Asp Pro Asp Thr Ile His				
1670		1675		1680
Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn Pro Ser Val Gly				
1685		1690		1695
Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val				
1700		1705		1710

Val	Asn	Ser	Tyr	Ile	Ala	Val	Ile	Leu	Glu	Asn	Phe	Ser	Val	Ala
1715						1720					1725			

Thr	Glu	Glu	Ser	Ala	Glu	Pro	Leu	Ser	Glu	Asp	Asp	Phe	Glu	Met
1730						1735					1740			

Phe	Tyr	Glu	Val	Trp	Glu	Lys	Phe	Asp	Pro	Asp	Ala	Thr	Gln	Phe
1745						1750					1755			

Ile	Glu	Phe	Ser	Lys	Leu	Ser	Asp	Phe	Ala	Ala	Ala	Leu	Asp	Pro
1760						1765					1770			

Pro	Leu	Leu	Ile	Ala	Lys	Pro	Asn	Lys	Val	Gln	Leu	Ile	Ala	Met
1775						1780					1785			

Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	His	Cys	Leu	Asp	Ile
1790						1795					1800			

Leu	Phe	Ala	Phe	Thr	Lys	Arg	Val	Leu	Gly	Glu	Ser	Gly	Glu	Met
1805						1810					1815			

Asp	Ala	Leu	Arg	Ile	Gln	Met	Glu	Asp	Arg	Phe	Met	Ala	Ser	Asn
1820						1825					1830			

Pro	Ser	Lys	Val	Ser	Tyr	Glu	Pro	Ile	Thr	Thr	Thr	Leu	Lys	Arg
1835						1840					1845			

Lys	Gln	Glu	Glu	Val	Ser	Ala	Ala	Ile	Ile	Gln	Arg	Asn	Phe	Arg
1850						1855					1860			

Cys	Tyr	Leu	Leu	Lys	Gln	Arg	Leu	Lys	Asn	Ile	Ser	Ser	Asn	Tyr
1865						1870					1875			

Asn	Lys	Glu	Ala	Ile	Lys	Gly	Arg	Ile	Asp	Leu	Pro	Ile	Lys	Gln
1880						1885					1890			

Asp	Met	Ile	Ile	Asp	Lys	Leu	Asn	Gly	Asn	Ser	Thr	Pro	Glu	Lys
1895						1900					1905			

Thr	Asp	Gly	Ser	Ser	Ser	Thr	Thr	Ser	Pro	Pro	Ser	Tyr	Asp	Ser
1910						1915					1920			

Val	Thr	Lys	Pro	Asp	Lys	Glu	Lys	Phe	Glu	Lys	Asp	Lys	Pro	Glu
1925						1930					1935			

Lys	Glu	Ser	Lys	Gly	Lys	Glu	Val	Arg	Glu	Asn	Gln	Lys
1940						1945					1950	

<210> 69  
 <211> 1380  
 <212> DNA  
 <213> Homo sapiens

<400> 69  
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 gatatgaaag gtcagatgaa acaataacat acatctggat tgagaaatat ctttaataact 120  
 gatggattat ttttattttc tttatgtatt gtgtgcttca atatcctaataaataatatt 180  
 agctagggtc actgatgtat agaatctttt tctacattta gatatttctt gcaaagtgtt 240  
 taccagaaag caacacaaaa atactatcag tgagtatgtg tttacactgt tctctaagga 300  
 gtcaaattcc tcaccttgaa aataattcat cccaggaaga gaaaagggtt tcaaaagact 360  
 agagcaggcc acaaggggagc tttcgcaaaa ctctacacgt aaagggtaat gtaaacttaa 420  
 aacctatttt tcaaacagta atttatatat cttttaattt tagtagttta tgtgtgaaac 480  
 aatcatgcaa aacaacaaag tgataaaatt ttttaaaaaa attagtgaga tgcaaataac 540  
 tgaatatgta aaaggtctca tacatattta tatgtagtag ataagttaca ttttttagt 600  
 gtgttgggaa attttagctc acatcacctc tctactgtca tcttggggca ctttcatgac 660  
 taccatgct tcatgcaggt ttactttcct cctgtgaca gaggataatg ggaatgtttt 720  
 ttctttggct caattttgtg tgtgtccgcc agtagatggc gtaccacttt gagtgcgac 780  
 ggcctttttt tctttctttt tttttttcct caaagctgtt ttctgatata tggtgggtac 840  
 catagagtga atctcagaac aggaagcgga ggcataagca gagaggattc tggaaaggctc 900  
 tctttgtttt cttatccaca gagaaagaaa gaaaaaaaaat tgtaactaat ttgtaaacct 960  
 ctgtgggtcaa aaaaaaaaaa aaaaaaaaaa gctgaacagc tgcagaggaa gacacgttat 1020  
 accctaacca tcttgatgc tgggctttgt tatgctgtaa ttcataaggc tctgttttat 1080  
 caggtaagct gacaaaacat ttcattatct gcaccataga acctagctac caggtcattt 1140  
 tccttacttt aaaatcatct tcatgtgct atttttaacc cagtgttggt taaatgtaaa 1200  
 ttacaggaac caaaggcatc gtttgatgtg taaactgctt actatttctt tatctttcaa 1260

agaaaataga gcctgtctgg aaatggtgat ttatggtaca tactaggcat caatggtctt 1320  
 gtgtttttgt agatgcttat gattaattgt attcagaaaa aatatttttt attatactta 1380

<210> 70  
 <211> 840  
 <212> DNA  
 <213> Homo sapiens

<400> 70  
 agggaagaac agaaggatgc tcaggagtgc cagcatgcct tcagaaagac taaatggatc 60  
 aaggctgcca aagaaggggg agcaccctg tccaaccct aggatcctgg cagtggttcc 120  
 tgggtccatt cttcctaaat catgctaggg catgctttta acaagggta aatatcttgc 180  
 tttgcatcat ctttgctttc tcgatccagg gccataaaaa aaaaaggaat aaaaccaga 240  
 cacagagcca gagcaccct atgccaaatg tcaaagatta taggctaatt tcacctgtat 300  
 tctctttcta cagagattat ggagcaagaa aactgaagcc aagccacatc aaggtttgac 360  
 agggatgaga tacctgtcaa ggattcatag tagagtggct tactgggaaa ggagcaaaga 420  
 atctcttcta gggatattgt aagaataaat gagataattc acagaaggga cctggagctt 480  
 ttccggaaaa aggtgctgtg actatctaag gtaactaaac aacttctggg tataagtttg 540  
 tttttgtgga aaataaacta aaatctctac tatttaacaa ggacagctgt atcaggacca 600  
 aaagaaggca gagggtgtt ttcttcttc ctctaccagt ttgttcttcc aaagaggcaa 660  
 atacatacag ggagacatag cacagatgac cttagggat ggaatgatgc caaaggctgt 720  
 tgatgtaaga aagagagatt aactcagttt ttttttgtt tttgtttttt tgtgtgtgtt 780  
 gttgtgtgtt tgagacagag tctctctctg tcgcccaggc tggagtgcag tggcatgaac 840

<210> 71  
 <211> 780  
 <212> DNA  
 <213> Homo sapiens

<400> 71  
 gatataattaa attttatgta ttttaataaa ttataatgtg catataatca ttaataatat 60  
 atatattcca caccaaggca tcagtaagaa ttaattttta aagtctgctc taatgtgaat 120  
 ataaaattat gtaagaactc tgtataataa gtcacagag tacaagaaag gagaggaaaa 180  
 aagtaaaaga gaactgcaa agaactatga gggatttcca aacagcaaaa ttgtcattga 240  
 agccatgaga aactctactc actaaattct ttaatttctc agcctacca aatattgggc 300  
 aaaccctaatt tctcttgag gggaaaagct gagagtctgg aactagccta tcttccgagg 360

acttagagac aacagtatgg gaatttcaac gagacgtttt tactttcttt tgaccaagat	420
tcaaattctt tattccagcc cttgataagt aaataagaag gtaaaggact atttatttgt	480
aaaaagtttt tcatgatttt gtgatggcac cttgttccat atcatctcag ataaatcaga	540
ataatttgtg aaaattactc ggtgatttcc acattagata ttttaaacct aatggtattt	600
ctaaaacaaa aaccaaccag gagaatccaa ttaagtaaaa tgtatgtatt aatataaatt	660
agctattccc atctggaaaa gggcagccat ttctgtgttg aggtgcctca atgatactga	720
ggctgagaca ggtagatga tacaggcata ccattagcag cagactcaat actaaccag	780

<210> 72  
 <211> 1025  
 <212> DNA  
 <213> Homo sapiens

<400> 72	
acaaagttaa gaaaaggcgg ggggcaggat gcagaataat taagcaattt tattgacaaa	60
ctthactggc attactcttt tgctgaaagt atactatatt ttggcttaca gtgtcaaaac	120
agaatttttt aaatgctttt aaaaaatgga caaaattata gatattcttg agtttaaata	180
taatgtttat atattatata tactgtacat tgtagaatgg ctaaatcaaa ctaattaaca	240
ttaagtacag acttttgata gatttatgaa cttggcttat tgagaatgag gttgaatgat	300
gatgttttca agttcaaatg tgtagtgacg tactaaaagc atgacttaat gtttatagct	360
ttaaaaagtt actaaagaat gacatttttg ttgatgttct tatgccaat cgcttgcttt	420
cctaactctt gtgcaatttt tctttttatt gcaggtaatt cgtatgcaag aagctacacg	480
taattaaatg tgcaggatga aaagatggca caggcactgt tggtagcccc aggacctgaa	540
agcttccgcc tttttactag agaatctctt gctgctatcg aaaaacgtgc tgcagaagag	600
aaagccaaga agcccaaaaa ggaacaagat aatgatgatg agaacaaacc aaagccaaat	660
agtgacttgg aagctggaaa gaaccttcca tttatttatg gagacattcc tccagagatg	720
gtgtcagagc ccctggagga cctggatccc tactatatca ataagaaagt gagtattgat	780
tttagacttc taataaatct ttaatgaaac tcttaactgt aataacttt tctgggcctt	840
atatacagca tcacaatttt tcttctgtta aagattttat aatactcttc actgtcactt	900
atttttatca caatataata aaacaaacat ttataagaaa tgaagtcaag agttgggtac	960
agtcaggaaa tatgaataga tgaatgatct ctacaatttc acagtgataa ttcagatagt	1020
caaaa	1025

<210> 73  
 <211> 433  
 <212> DNA  
 <213> Homo sapiens

<400> 73  
 tgtaacyata tgттааттта аасаатсаа аtgттtgtag ttatgatata tcaactgggt 60  
 taaacaaacc agттtgааса аасааатсy атттттааа аaggtcctca tgtatgтааg 120  
 ctccttaaаt аaggccatgt cтааттtagt аатттtactc gtатттtctg тттcagactt 180  
 ttatagтааt gaataаaggа аaggcaаттt cccgattcag tgccacctct gccttgтаa 240  
 ттттаactcc actaaaccct gttaggаааа ttgctabsаа gатттtggtа cattcatatc 300  
 cттттaатgt gaattgccta аatgctаттt cтаacagttg аттттааага аaatgtcagt 360  
 tatатттtca agtatctgта ааатттcttt gagаттаатg gтаacattgt tagтттаатт 420  
 catttatттg cat 433

<210> 74  
 <211> 450  
 <212> DNA  
 <213> Homo sapiens

<400> 74  
 gagtgcacca aggccatatc acaggctттg аagттtctta ttатттtatc attgттttaа 60  
 аасааатаат аттаатттса сagттттtgс atcgataаac тттттtggtg gттттggatc 120  
 атттатааат ggccatggта acctactaac атттаттcct таactатаат ctactттatt 180  
 cagcatgctt atcatgtгса ctатттtgac caactgtгта тттatgacct tgagcaaccс 240  
 tcctgactgg асааагаатg tagagтааgt aggaataact tctgggaatg agaaatgcac 300  
 actcaaатtс tctagcaatc tccttgтggg tatagcctга cttatggттt ccacttctgt 360  
 cтаagаааag ttатттtcat аатatgcagc cgгтаaggga ggtctттcgг gggagctatt 420  
 cttctacgag gтаagtаттt tcccacаааа 450

<210> 75  
 <211> 701  
 <212> DNA  
 <213> Homo sapiens

<400> 75  
 аааатттacc атттgygгct ttccattaca тттctatcag атаactctgc gctagtaggt 60  
 caaactagat gattatccat аagatacatg ааactattat tctaaaaccс аaatagттaa 120

accagattag attcctaaag aatatat	ctcttcagtt taactctttg ctcaggcttg	180
taaaactaac taaatgaata gattat	tttgg taaatagaag taaggaacaa	tattttaatg 240
aattgaaaaa ccacaaaagg atagg	atttg ctatgattga aacatttat	tttaacagtt 300
caagcaaaat tgttaat	ttt ggcttggatg tttttcctag	gtacacattc actggaatct 360
atacctttga gtcacttata aaaat	cttgg caagaggggtt ttgcttagaa	gattttacgt 420
ttcttcgtga tccatggaac tggct	ggatt tcagtgtcat tgtgatggcg	tgagtaactt 480
tgaaaatttg ataagcgcaa aggagt	gaaa atagtcatag tacaacaag	gtctttgtgt 540
catatattaa atgtagagct ttctt	gttag tcaagttaac tatatgggtt	gtgtattttc 600
agaatacata ttagaatata tattg	caatg taaatatatc cagtaaatga	tcaataaatg 660
gggttatctt catgtcatat agtct	ttctc ttcacaaaa t	701

<210> 76  
 <211> 286  
 <212> DNA  
 <213> Homo sapiens

<400> 76		
atttgttaaa ctcacagggc tctat	gtgcc aaaccagca ttaagtcctt	atttagtata 60
aactttgcc aactatcag taactct	gat ttaattctgc aggtatgtaa	cagaatttgt 120
aagcctaggc aatgtttcag cccttc	gaac tttcagagtc ttgagagctc	tgaaaactat 180
ttctgtaatc ccaggtaaaga agaa	actgggt gtaaggtagt aggccctta	tatctccaac 240
ttttcttgtg tgttattgtg tttgt	gtgtg aactccccta ttacag	286

<210> 77  
 <211> 515  
 <212> DNA  
 <213> Homo sapiens

<400> 77		
gtaagaagaa actggtgtaa ggtag	taggc cccttatatc tccaactttt	cttgtgtgtt 60
atttgttttg tgtgtgaact ccccta	tattac agatatgtga cagagtttgt	ggacctgggc 120
aatgtctcag cgttgagaac attcag	agtt ctccgagcac tgaaaacaat	ttcagtcatt 180
ccaggtgaga gctagggttaa acacc	gaggt tgactttaat tattgagttt	gaaatcaatt 240
tatatgactt acagcattag ccttg	ttgtgtc tattattaca gttcatcccg	gtaaataatg 300
ccaaatgatg tttcaatgtc agttt	tagctc ctaaaatttt ataaattaca	tgcgtattta 360

taaagtcagc ctttgagttt aacagaaaat tgcattgagac atcttcaaaa aatgctaatt	420
tgggcctctt gcgctctctc tctctctttt tctactaccat ggctttacta acagatttgg	480
attttaccat tcgctgcaga tgtagttcaa aaatg	515

<210> 78  
 <211> 564  
 <212> DNA  
 <213> Homo sapiens

<400> 78	
aaacttcctg actagatatt taaaccttca tattgaattt ccagcaagca cactgttcat	60
gtgtaaaatc tgctgttcat ctatttccca aatcatcagg ctatccatac agcttttggtg	120
tctaaatagt caagcaatca tttatggggg aaagagaatg tgtgtgacta ttaagaaatc	180
atgattttctg gcaactcttc tcaggtaacc tatagttctc tctctgcagg tttaaagacc	240
attgtggggg ccctgatcca gtcggtaaag aagctttctg atgtgatgat cctgactgtg	300
ttctgtctga gcgtgtttgc tctcattggg ctgcagctgt tcatgggcaa tctgaggaat	360
aaatgtttgc agtggccccc aagcgattct gcttttgaaa ccaacaccac ttcctacttt	420
aatggcacaa tggattcaaa tgggacattt gttaatgtaa caatgagcac atttaactgg	480
aaggataaca ttggagatga cagtaagaag tattacatta tgttaacctt agtgttgctg	540
aatgaatttt caactataaa tagt	564

<210> 79  
 <211> 497  
 <212> DNA  
 <213> Homo sapiens

<400> 79	
tgagactgtg ggtgtacagc cacctttgta aataactgaa atagtccaac tctgatttat	60
tactaatact aatgtgaata ggattaatat gaaataaaat gggttttttt ttgtattaac	120
aggtcacttt tatgttttgg atgggcaaaa agacccttta ctctgtggaa atggttcaga	180
tgcagggtaa gaaacataat atatattttt aagatataga actctttgcg aaaaaaaaaa	240
gtaggtagga aaacaactac atggttatat gtgtagcctt accatgtatg caataaagag	300
cagtgtgtgt cccctaggaa gtgccttgct tgccttaccg gattgccact ggtcctaaac	360
tcacagcaat taaaaattat ccctttgtga agacctttcc ccaaaatttc acagttaaga	420
tgttcttaaa ttgatgtctc aatgtgtgaa ggcccagagt ctgtctttgc tgtacatcta	480
tcagagctgt taggaaa	497



<210> 80  
<211> 501  
<212> DNA  
<213> Homo sapiens

<400> 80  
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tctaaatgtc trwaaawatt tatttgcac taaattttct atcggctctc ctagtgaatt 120  
tcattctgata agtttcacgg tgggcaatca cctaaagtgt tctggaaatt aaagcaagat 180  
aattcgtcac agatagcagc tttgggtttt gaaaattcct ataagtcaa taaattgaaa 240  
ttgctgtaat ttctaaactg accctacctc catttctctc tcttatagcc agtgtccaga 300  
aggatacatc tgtgtgaagg ctggtcgaaa cccaactat ggctacacaa gctttgacac 360  
cttttagctgg gctttcctgt ctctatttcg actcatgact caagactact gggaaaatct 420  
ttaccagttg gtaagggtcca aatgagcatg cataacattt atttttatag acatgtatga 480  
aatgaaaagc ataggctgag t 501

<210> 81  
<211> 432  
<212> DNA  
<213> Homo sapiens

<400> 81  
agctaattag tctactgact atctaactgt ggtaatcaga tatttatttg gggacattat 60  
actaaaatac tgatggaatt atccccatt tcccctagac attacgtgct gctgggaaaa 120  
catacatgat attttttgtc ctggtcattt tcttgggctc attttatttg gtgaatttga 180  
tcctggctgt ggtggccatg gcctatgagg ggcagaatca ggccaccttg gaagaagcag 240  
aacaaaaaga ggccgaattt cagcagatgc tcgaacagct taaaaagcaa caggaagaag 300  
ctcaggtact gagtgataaa mgcaaagatt tatcattatt attmmtagtt tctaagtaga 360  
aatagtgtta tactatagag ggtagattgg aactgctttt tcattttata tatmggcatt 420  
gtcattagac ac 432

<210> 82  
<211> 489  
<212> DNA  
<213> Homo sapiens

<400> 82  
tgcaaaactgt tttcaaagct ctgtgttcta aatagtgcct ggctttgttt tatgacaggc 60

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agttgcggca gcatcagctg cttcaagaga tttcagtggg ataggtgggt taggagagct 120
gttggaaagt tcttcagaag catcaaagtt gagttccaaa agtgctaaag aatggaggaa 180
ccgaaggaag aaaagaagac agagagagca ccttgaagga aacaacaaag gagagagaga 240
cagctttccc aaatccgaat ctgaagacag cgtcaaaaga agcagcttcc ttttctccat 300
ggatggaaac agactgacca gtgacaaaaa attctgctcc cctcatcagg tatgattttc 360
tactaagtgc tctggtttct ttgtcattgc tattgctttt tagtttttgt attttgtttt 420
ggtacacttt tgtactatct gtacttcagt tgagggacag ggaactaaca tttaatatag 480
ttgtttaaa 489

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<210> 83
<211> 653
<212> DNA
<213> Homo sapiens

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<400> 83
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aaaaacactc tttgtactta aatttgcttt aataaaaata tcaaaatata tgtgtcctct 120
ataaatttga ttatccatgt ttaagggcaa gagtatacta actccaaaga aaacagatcc 180
tttaatatta atatttatta aataattgcg ttcttcccct acccccatcc cattcctttc 240
ctttttgctt tctctgcagt ctctcttgag taccgtggc tccctgtttt cccaagacg 300
caatagcaaa acaagcattt tcagtttcag aggtcgggca aaggatgttg gatctgaaaa 360
tgactttgct gatgatgaac acagcacatt tgaagacagc gaaagcagga gagactcact 420
gtttgtgccc cacagacatg gagagcgacg caacagtaac gttagtcagg ccagtatgtc 480
atccaggatg gtgccagggc ttccagcaaa tggggaagat gcacagcact gtggattgca 540
atggtgtggg ttccctgggt ggtggacctt cagctctaac gtcacctact gggcaacttc 600
cccagaggtg ataatagatg acctagctgc tactgacatt attcaccaat ttg 653

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<210> 84
<211> 566
<212> DNA
<213> Homo sapiens

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<220>
<221> misc_feature
<222> (477)..(477)
<223> n = a, c, t or g

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<400> 84  
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tgcaaagaaa tgctatgtgg tgttgattta cttattggga agagtggttt gagccatcag 180  
tatttggttt gcagggcacc accactgaaa cggaagtcag aaagagaagg ttaagctctt 240  
accagatttc aatggagatg ctggaggatt cctctggaag gcaaagagcc gtgagcatag 300  
ccagcattct gaccaacaca atggaaggta agagcaggtc atggaacagc caactttctg 360  
tgattatgtg ctttgatgaac tattccttct tttcatagaa ttactgaagt ctgttaccba 420  
gatcgaacta tatattagac ctaagaatgt gatatatggt gtacattatc acattgntta 480  
caaaactaat attggcctta ttctttttga cttgggtcct taccttactt gcagagtgat 540  
atttcaacac ttgatattat atcaat 566

<210> 85  
<211> 748  
<212> DNA  
<213> Homo sapiens

<400> 85  
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cttctcaagt ttcttaagta atatgaactt ctattttcaa atataagcat caattttgtt 180  
aaataatgta aaatctacta gcaataataa ctcatttttg ttgttattta ctactcttcc 240  
ttgttattgt cctccagaa cttgaagaat ctagacagaa atgtccgcca tgctggtata 300  
gatttgccaa tgtgttcttg atctgggact gctgtgatgc atgggttaaaa gtaaacatc 360  
ttgtgaattt aattgttatg gatccatttg ttgatcttgc catcactatt tgcattgtct 420  
taaataacct ctttatggcc atggagcact accccatgac tgagcaattc agtagtgtgt 480  
tgactgtagg aaacctggta agtacatttg aagtttactt atttactttg gtagatgtgg 540  
gagagataga ccaaagggaa agatgtattt gtgctgtgtt gaacccaaaa attatatcct 600  
ctttcctcat agaaagaaat atctaaggaa tattacaggg aatctcagag atacagccta 660  
aaactcaact ggtatgaatg ctgattgttt aggccaatgt ctgtgctgat tgatcatggt 720  
gtcttaccag ttgtaaacgt ctcaaaat 748

<210> 86

<211> 664  
 <212> DNA  
 <213> Homo sapiens

<400> 86  
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 tgtctaagt tcttctttat aaattcgtgt agcatcagtg ttttcagtg tcttgatagt 120  
 agtgctgac tctaattttt taggtcttta ctgggatttt tacagcagaa atggttctca 180  
 agatcattgc catggatcct tattactatt tccaagaagg ctggaatata tttgatggaa 240  
 ttattgtcag cctcagttta atggagcttg gtctgtcaaa tgtggaggga ttgtctgtac 300  
 tgcgatcatt cagactggta tctatttata tatatccctg tcgctcattg gcacaacatt 360  
 tattttgaaa ttgaatcaat gtatatttat ataattatta attttaattt taaatttaca 420  
 tcaatatgtg acattctaag aaaacatgta aacatccyct ttaaagctaa accattttct 480  
 aagaatgatg aaagcattca aaatactcta taatgattag gtatgtaggg cacattagaa 540  
 aacctacaag tactttctaa aactgtgttt taagtttatg aagctttttt ggccttacag 600  
 tctgtaaaga tacgcaaata aaaatttaga cccagttta ttttagcttt ttattaaccc 660  
 tact 664

<210> 87  
 <211> 750  
 <212> DNA  
 <213> Homo sapiens

<400> 87  
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 ccacgtgtgg ttctatgata ccacatacta ataaaataat gtctaaaatt atattatgat 180  
 tactactaac agcatctttt cacttgatta cagcttagag ttttcaagtt ggcaaaatcc 240  
 tggcccacac taaatatgct aattaagatc attggcaatt ctgtgggggc tctaggaaac 300  
 ctcaccttgg tgttgccat catcgtcttc atttttgctg tggtcggcat gcagctcttt 360  
 ggtaagagct acaaagaatg tgtctgcaag atcaatgatg actgtacgct cccacggtgg 420  
 cacatgaacg acttcttcca ctcttctctg attgtgttcc gcgtgctgtg tggagagtgg 480  
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 atgttgggtca tggtcattgg aaacctgtg gtatgtatgt agtacaaatg ctcataaatt 600  
 agaacaagag cagacagtag ctaggaacgt ggccagatgt agtaaacata tctctggttt 660

atagtaagtg gcctagactg aaatccccct attagcactc agagaataag caagttattt 720  
aactttctct gggctctggg ttcccatttt 750

<210> 88  
<211> 768  
<212> DNA  
<213> Homo sapiens

<400> 88  
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atagtaagca ttcaataaac atttgttgaa ataatttttag caaagatcta tgagttccct 120  
tttttaggctg ttattttaaat gcatatttca atattaarat aggcattttt ctttttttct 180  
tttaggttct gaacctcttt ctggccttat tgttgagttc atttagctca gacaacctg 240  
ctgctactga tgatgacaat gaaatgaata atctgcagat tgcagtagga agaatgcaaa 300  
agggaattga ttatgtgaaa aataagatgc gggagtgttt ccaaaaagcc ttttttagaa 360  
agccaaaagt tatagaaatc catgaaggca ataagataga cagctgcatg tccaataata 420  
ctggaattga aataagcaaa gagcttaatt atcttagaga tgggaatgga accaccagt 480  
gtgtaggtac tggaagcagt gttgaaaaat acgtaatcga tgaaaatgat tatatgtcat 540  
tcataaaciaa ccccgacctc accgtcacag tgccaattgc tgttgagag tctgactttg 600  
aaaacttaaa tactgaagag ttcagcagtg agtcagaact agaagaaagc aaggaggtaa 660  
ggaatgcttt taaatttttt gttccatttc ctatgataac catgtactac agttatttac 720  
tattttcatt gtgcttatat gcattatoga aaagcaatga ttgtaagt 768

<210> 89  
<211> 471  
<212> DNA  
<213> Homo sapiens

<400> 89  
taattattag tacataatga tcagtaatgc taatagagtt aaatgctatc actacatttt 60  
ttttcacaca atgacacagt atttccagtg tagttaaata aaagggggaa aatcacatct 120  
ttgaaatggg attttgtttc cagaaattaa atgcaaccag ctcatctgaa ggaagcacag 180  
ttgatgttgt tctaccccgga gaagggtgaac aagctgaaac tgaacccgaa gaagacctta 240  
aaccggaagc ttgttttact gaaggtaaac aagctctgat gtgattaaat acaatctccc 300  
cttgttcttt acggagactg aatatgcctc atttaaaaaa aaaaatttag caaacgaggt 360

gtggtggctt atgcctgtaa ccccaaaatt ttgggaggct acggtaggag gattgcttga 420  
 cccagagagt ttgagaccac cctgggaaat gtagtaaggc tttgcctcta c 471

<210> 90  
 <211> 623  
 <212> DNA  
 <213> Homo sapiens

<400> 90  
 gaattctaag tagctggctg agtatataag tctgagaata attcattata caggagggat 60  
 gctgacgata actaggaaat gaaggagatg gttaccctat gaaatgatta cctggaagtg 120  
 gagtggggaa ggggcaagaa agtttatttt ttcctattta agattaaaat atatttttta 180  
 attaactata ttttsattttt aggatgtatt aaaaagtttc cattctgtca agtaagtaca 240  
 gaagaaggca aaggaagat ctggtggaat cttcgaaaaa cctgctacag tattgttgag 300  
 cacaactggg ttgagacttt cattgtgttc atgatccttc tcagtagtgg tgcattggta 360  
 agtgaaatgc atattggcaa gaatcagatt ctggtgaaat agtttattct ccaaattac 420  
 cagatgcaaa cactgagctt cagaatcaaa agaaaaggca tatctgtgtc ttgcagagct 480  
 tggcacccaa ggtttaacga tgcaaaattc agttctgaac aaatcagcac catgaaacag 540  
 ccagatggaa tttctcatct ggtgtttatc taacagatgt tttcctcact gagacaacca 600  
 tttgcagaga cattctgtaa cca 623

<210> 91  
 <211> 520  
 <212> DNA  
 <213> Homo sapiens

<400> 91  
 ctagttagtc tttagatttg tctcatgttc aatgtttatg taaaatatca ataatcaaaa 60  
 ttattctttt gtactcacta ttatactaag caattttttc aaatatttag aagaagcaag 120  
 ccatttaagt aaaataaaat atttttgatt cataggcctt tgaagatata tacattgaac 180  
 agcgaaagac tatcaaaacc atgctagaat atgctgacaa agtctttacc tatatattca 240  
 ttctggaaat gcttctcaaa tgggttgctt atggatttca aacatatttc actaatgcct 300  
 ggtgctggct agatttcttg atcgttgatg taagtatttt aagtgatttt tataaaattg 360  
 tttttaaaag aggcaagttt gacatttcat atgtttctgt tattaaaact ttcactaata 420  
 atgacataat tatgcagtta tttaaacaaa actgtaacat atgcaacaat gaggaatatc 480  
 tcatgggaaa gagtagagga ggtcctaaac atgggcagtg 520

<210> 92  
<211> 595  
<212> DNA  
<213> Homo sapiens

<400> 92  
ctaactaata atttaagcac acatccatga aggatctggc attgaactca atcctgaatt 60  
atcagtggta tatgcacaag ttgaaaagg gtccatggta taaaatatct aactggagat 120  
attgacacgt gttgataaat atgggcaagt attctggttt cattggttaa aaaaaagcaa 180  
tagtatgaga tgagactggc aatataagat gacccacta tgtggaagat gaaagttgcc 240  
aaggatgtc caaattagta tttagtctgc attaaataga taccacaccc tataccttca 300  
gtcaacagtt tatttcttgg tgaactaatt aatttttttt tccttttgta ggtttctttg 360  
gttagcctgg tagccaatgc tcttggctac tcagaactcg gtgccatcaa atcattacgg 420  
acattaagag cttaagacc tctaagagcc ttatcccggg ttgaaggcat gagggtaaga 480  
agaatagaca ctctaattat tcatgtcaaa aattacatgt aggtaatgat ttagatagaa 540  
aagggtgcc aactcttctg atatttattt caatagaaat tacagaatta gaagc 595

<210> 93  
<211> 787  
<212> DNA  
<213> Homo sapiens

<400> 93  
ccagcataca aacattttct gactccatct tactatacca ggtttttaatt gatttctttt 60  
catactgtag catattttgc tttccttaaa accttagctc tttagttgtg tcattgtttg 120  
tttccttca aatatgtgct agaaaaatta gaagaaacaa cttgtccacc tagattttta 180  
tttaactctt ttcaagcaca tattaatact aaacaaatac attgaaggaa tggtttccat 240  
tcaaaagggt tgtaagctat gttcccctcg ctgtctcttc taggtggttg tgaatgctct 300  
tgttggagca attccctcta tcatgaatgt gctgttggtc tgtctcatct tctggttgat 360  
ctttagcatc atgggtgtga atttgtttgc tggcaagttc taccactgtg ttaacatgac 420  
aacgggtaac atgtttgaca ttagtgatgt taacaatttg agtgactgtc aggcctcttg 480  
caagcaagct cggtggaata acgtgaaagt aaactttgat aatgttggtg ctggctatct 540  
tgcactgctt caagtggtaa gtggctactg tacgagtttt gaaaaagttt tcaagatgtt 600  
tcaaggaaga ttatttcctt gatgttcttc gtttgaatga ctaacatttg acagcatgaa 660

aaaaagttaa tgataacacc tataatatca gcttgaattg atcataaaaa agatgttaca 720  
attatatttat aatgtatttt ccttagtggt aagcttttag tatgttttaa tgtgatttta 780  
tatttct 787

<210> 94  
<211> 438  
<212> DNA  
<213> Homo sapiens

<400> 94  
aaaggaaaca agttccagac tttaaataca aatgtttttc tatttcaatt ttatttcaat 60  
ctcttgatat gaaatttcac aatattgtac aaaaagttat ttgttataat actgtcagat 120  
tttcatctgg ttaaagtca ttgttagtg aaatttttat gaacaattca aatatatgtt 180  
atttacaggc cacatttaaa ggctggatgg atattatgta tgcagctgtt gattcacgag 240  
atgtaagtat cactcaaata ttatttatag gttctagatt tcttatggtg aatattggtg 300  
gtaatttaaa cactgatata tccaaaattc tatattagaa catttaatat tgcataataa 360  
aatgaacag tctgcttcaa tatagatgat gcttgattaa tgtgtgccta atatacaata 420  
tgtagcta atgaaacg 438

<210> 95  
<211> 637  
<212> DNA  
<213> Homo sapiens

<400> 95  
gtaaggcaca atgggaaaag agaatcaaga acaatcataa aacttgcaaa ctttcatttt 60  
actagatcat actagtttta aaaaattggt tttgtagaac aatatctcag ggtaaggcaa 120  
aagtagcact gtattaagta acagcactca ataaattact gatttagtgt aagtatttat 180  
agtatttttc atattattta atattttcaa tatcatttag gttaaacttc agcctgtata 240  
tgaagaaaat ctgtacatgt atttataactt tgtcatcttt atcatctttg ggtcattctt 300  
cactctgaat ctattcattg gtgtcatcat agataacttc aaccagcaga aaaagaagat 360  
aagtattctt tagcttttac ctttcttcat tctggggttc tgtctgttaa tacagccaaa 420  
taaccagaat acctgtgggc atgacagact taaatcatgt ttatattatt ttcagttgcc 480  
catgtgggta tttaagctgc agggattcca gcctctagtc agtggctcct ctcaaagttt 540  
atctattgga tagctttctg acccaaaaat gtgtccactc cttcggaccc atccaacggg 600  
tctccagtgc tttagcttgg cttacagagc ctttcag 637



<210> 96  
 <211> 637  
 <212> DNA  
 <213> Homo sapiens

<400> 96  
 acccttgtgc ctacttttaa acatagtata atcaaattag gatcctgtag cgatcagagt 60  
 tttatgtacg taaggatttt gcataatatt aagatattca gaatttcaca taaatgggaa 120  
 aagcaggata aatgtatatg taggaggata atatccactt aaaaattaga aaagattaaa 180  
 ggaaagacaa atatTTTTTg tgaaagtact attggaacac agaattgtaa ccagttttat 240  
 actatgtctt tactttggag gtcaagacat ctttatgaca gaggaacaga aaaaatatta 300  
 caatgcaatg aagaaacttg gatccaagaa acctcagaaa ccatacctc gcccagcagt 360  
 aagaattact tgtctccttt aatgttccaa agccatgcgt ccatatgggc aaattgagca 420  
 atgctctgga gcagaacata ttaggtgata tcaccaatat tgagccctaa ttataaagtt 480  
 catatTTTgc atcataattc acaacttctg cactcattag gagttaccac attccaaaaa 540  
 aaggaggtaa tgttctttat aatttgtgag ttgaaaactt ctagctcagg gttcctaata 600  
 aatacttcca aagcaagggt cactttcctg ctaccaa 637

<210> 97  
 <211> 759  
 <212> DNA  
 <213> Homo sapiens

<400> 97  
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 gaagagaaaa aaagcacaca aaattgtttg gggtaatatg aggagggtgc acatccatcc 120  
 cgtatgtgga agggctttat ctacaatttt actgcattat tctttatgaa atatatatag 180  
 taaccttatt tctcttctct cactttctag aacaaattcc aaggaatggt ctttgatttt 240  
 gtaaccagac aagtctttga tatcagcatc atgacctca tctgcctcaa catggtcacc 300  
 atgatgggtg aaacggatga ccagggcaaa tacatgacct tagttttgtc ccggatcaac 360  
 ctagtgttca ttgttctggt cactggagaa tttgtgctga agctcgtctc cctcagacac 420  
 tactacttca ctataggctg gaacatcttt gactttgtgg tgggtattct ctccattgta 480  
 ggtaagaaca gcttaattac caagagggtat agttacagag aaacagttgc ccaggacct 540  
 tctagctgat taacatggaa attaggtctg agaataataa tgcatataga tgtaaagttc 600

aacactagca tatttgaata aaaactctga aacctggggtt tattcacaaa gctaactagt	660
tagaaacccat gtttaggaata ccagatttgg gaaagagggtg aagaagacag gaaataaaca	720
ttatcaggta ctctcctaata cttaaaccacaa ggtcacagg	759

<210> 98  
 <211> 3975  
 <212> DNA  
 <213> Homo sapiens

<400> 98	
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caagtttggt gtgttcataag accttaaaaa agataaagcc atcatgtaaa gtgaaaagat	120
attatctggt tagctgtggt ctatgttttc cataggtatg tttctggctg agatgataga	180
aaagtatttt gtgtccccta ccttggttcg agtgatccgt cttgccagga ttggccgaat	240
cctacgtctg atcaaaggag caaaggggat ccgcacgctg ctctttgctt tgatgatgtc	300
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aatacagatg gaagacaggt ttatggcatc aaaccctcc aaagtctctt atgagcctat	1020
tacaaccact ttgaaacgta aacaagagga ggtgtctgcc gctatcattc agcgtaattt	1080
cagatgttat cttttaaagc aaagggttaa aaatatatca agtaactata acaaagaggc	1140
aataaagggg aggattgact tacctataaa acaagacatg attattgaca aactgaatgg	1200
gaactccact ccagaaaaaa cagatgggag ttcctctacc acctctctc cttectatga	1260
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 ctatttttta cttccatata tgccatattt ttacaaaatt tgttctagtg catttccatg 1740  
 gtccccaatt catagtttat tcataatgct atgtcactat ttttgtaaag gaggtttacg 1800  
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 gagagataaa atttttgtct aaaaccagaa aaagaattgt aatggctaca gtttcagtta 1920  
 cttccatttt ctagatggct ttaattttga aagtatttta gtctgttatg tttgtttcta 1980  
 tctgaacagt tatgtgctg taaagtctcc tctaattttt aaaggattat ttttatgcaa 2040  
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 aggtcaaag ctttccaaaa agtaatctaa taaatccatt ctagaaaaat atatctaaag 2160  
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 aaatatgtac cacagtgtat gtgtcttttg caagcttcca acagggatgt atcctgtatc 2400  
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 aatgaattca acctgctctg tccattatgt caagcagaat aatttgaagc tatttacaaa 2580  
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 ttttctacca ttccaatagg agatacattg gtcaaacact caaacctaga tcattttcta 3000  
 ccaactatgg ttgcctcaat ataacctttt attcatagat gttttttttt attcaacttt 3060

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 tacaatatata acatggactt tgttcttttt agccatgaac aaagtggcaa agttgtgcaa 3180  
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 ggtttgataa taatagtagt aaccacctac aatagctttc aatttcaatt aactcccttg 3660  
 gctataagca tctaaactca tcttctttca atataattga tgctatctcc taattacttg 3720  
 gtggctaata aatgtttacat tctttgttac ttaaatgcat tatataaact cctatgtata 3780  
 cataaggtat taatgatata gttattgaga atttatatta actttttttt caagaaccct 3840  
 tggatttatg tgaggtcaaa accaaactct tattctcagt ggaaaactcc agttgtaatg 3900  
 catattttta aagacaattt ggatctaaat atgtatttca taattctccc ataataaatt 3960  
 atataaggtg gctaa 3975

<210> 99

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 99

tgtgttctgc cccagtgaga ct 22

<210> 100

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 100

cttctgctc tgcccaaact gaat 24

<210> 101  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: synthetic oligonucleotide  
  
 <400> 101  
 ggcgatgtaa tgtaaggtgc tgtc ..... 24  
  
 <210> 102  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: synthetic oligonucleotide  
  
 <400> 102  
 gtgccttcag ttgcaattgt tcag ..... 24  
  
 <210> 103  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
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<210> 197  
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<210> 387  
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<210> 388  
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<210> 403  
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